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ABSTRACT

This ninth issue contains seven articles dealing with research, theory, trends and issues, curriculum, teaching methodology, technology, and personal/professional development. "Attitudes of FBLA (Future Business Leaders of America) Students toward Traditional Business Values and the American Economic System" (Inder P. Nijihawan, Richard S. Ellis) suggests that FBLA members demonstrated less than affirmative attitudes toward economic and business issues than expected based on their training and economic education. "Business Education in Cohorts: Does Familiarity Breed Learning?" (Katherine C. Reynolds, Sri Sitharaman) reports that significant differences appear in greater affective learning among students in cohort programs. "Building Effective Workforce Development Systems: Core Principles" (Reid A. Bates) describes a set of 10 principles guiding the development of high-performance workforce development systems. "Dispositions Toward Critical Thinking Related to Analytical Writing" (Barbara A. Wilson) reports a study that found a relationship between the California Critical Thinking Disposition Inventory and analytical writing. "U.S. Corporate and Public Organizational Uses of Communication Systems" (Jensen J. Zhao et al.) describes research that found that, although corporate and public organizations used similar types of communication systems, significant differences existed between them in the frequencies of using traditional paper-based and computerized communication systems for business activities. "Issues and Innovations in the Implementation and Delivery of Internet- and Intranet-Based Instruction" (Martha Lair Sale et al.) discusses the expanded role of such instruction at the university level; provides descriptions and examples of various resource guides for both the learner and the instructor; and provides implementation tips for the instructor of a net-based course. "Teaching Ethics in the Information Systems Curriculum: A Pragmatic,

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Values-Based Approach" (Marc Lampe, Gary P. Schneider) discusses techniques instructors currently use to teach ethics to business students and presents alternative strategies that can be more effective in encouraging students to exhibit ethical behavior in their future careers. (YLB)

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EDITOR'S NOTES . . .

The manuscripts presented in this issue were accepted under a blind review process. Each was read by three reviewers from the Journal's editorial review board. The Journal is listed in Cabell's Directory of Pubishing Opportunities in Management and Marketing and in Cabell's Directory of Publishing Opportunities in Education. A description of these directories is provided, here within the Journal, along with information on how to order copies of the directories.

This ninth issue of the Journal contains articles on a wide variety of topics, beginning with Inder P. Nijhawan and Richard S. Ellis' study of a random sample of FLBA students and non-FLBA high school seniors in North Carolina to measure the students' attitudes toward traditional business values and the American economic system. By studying these young Americans' attitudes toward economic and business issues, the authors offered some interesting insights into future actions of the next generation of potential business people.

In response to the changing demographics of college learners in the last two decades, business education program administrators and instructors have offered innovative class schedules (e.g weekend classes) and course structures (e.g. internet courses) to meet the multiple needs of their students. Katherine C. Reynolds and Sri Sitharaman describe in their article a study they conducted to compare the learning levels of students in cohort programs and of students in non-cohort programs. Based in their findings, the authors provide some recommendations to educators.

As workforce preparedness becomes an increasingly important element of individual well-being and of social and economic progress, it is important that we put in place policies and systems that support the development of our human resources. Based on a research project, Reid Bates describes in his article ten principles that may be used to guide the development of high-performance workforce development systems which can be applied at the community, state, or national level.

The ability to write analytically is expected of business graduates, but many of our college students are underprepared and lack basic writing skills. Research on writing indicates that informational writing skill development is emphasized at the secondary level over analytical writing skills. In her article, Dr. Barbara Wilson, describes a study that was conducted to investigate the relationship between a disposition towards critical thinking and analytical writing.

Information Systems educators at both the secondary level and the postsecondary level agree that ethics instruction should be part of the curriculum. In their article on teaching ethics to business students, Mark Lampe & Gary P. Schneider describe several approaches that can be employed.

The impact of technology in the workplace and in the classroom, along with implications for instruction, are covered in the next two articles. Jensen J. Zhao, Beryl McEwen, and Daniel Wunsch conducted a study to investigate the communication systems used in corporate and public organizations. Their paper reports the similarities and differences of the two types of organizations in regard to the types of communications systems used and the impact on productivity and preference. The article by Martha Lair Sales, Ronald G. Cheek, and C. Steven Hunt focuses on the issues surrounding the implementation and delivery of net-based instruction. The authors discuss the expanded role of Internet/Intranet instruction at the university level. They provide description and examples of various resource guides for both the learner and the instructor. Implementation tips are provided for the instructor of a net-based course.

Sincere thanks are extended to all authors for their professional contributions to this issue. Appreciation also is extended to the editorial review board and to the associate editor, Betty Kleen. Acknowledgment must be given to Sandra Cash of the Louisiana State University for her patience in keying the Journal. Sincere appreciation goes to our advertisers for their support.

Donna H. Redmann, Editor

JOURNAL PROFILE

Journal Description

The Journal of Business and Training Education is a national refereed publication published annually by the Louisiana Association of Business Educators. This refereed journal includes articles on various aspects of business and training education dealing with research, theory, trends and issues, curriculum, teaching methodology, technology, and personal/ professional development. Manuscripts are selected using a blind review process. Each issue contains approximately four to ten articles. The first issue of the journal was circulated in Spring 1991. Volumes 1 - 4 were entitled Louisiana Business Education Journal . All volumes of the Journal are available in the ERIC database.

Circulation/Readership

The readership is comprised of business teachers, administrators, supervisors, teacher educators, college and university students planning to become business teachers or trainers, and trainers in business & industry. The journal is distributed to all LABE members as part of membership dues and sent free of charge to the NABTE (National Association of Business Teacher Education) institutions throughout the country.

JOURNAL SUBSCRIPTION

Subscription is part of LABE membership dues. Subscription rates are $10 for both non-LABE members and for institutions/ libraries. For a subscription, please make your check payable to **LABE** and mail it to the editor at the following address:

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CALL FOR PAPERS

The Louisiana Association of Business Educators invites business educators and trainers to contribute articles for publication in the Journal of Business and Training Education, a national refereed publication. Manuscripts should deal with topics of interest to educators (at both the secondary and post-secondary levels) and to trainers in business and industry. Submission of manuscripts dealing with practical topics are encouraged, as are research based or theoretical papers. Occasionally, invited authors' papers will be published. Book reviews are also accepted.

Manuscripts will be selected through a blind review process. Manuscripts should not have been published or be under current consideration for publication by another journal. Five copies of the manuscript, including a title page and a 50-100-word abstract, should be submitted to the editor. The manuscripts should range from 6 to 15 double-spaced typed pages of 12 pitch type-size, including tables and references. Manuscripts must be prepared using the style format in the Publication Manual of the American Psychological Association, Fourth Edition, 1994 (ISBN 1-55798-241-4). The title page is to include the title of the manuscript and the running header. The following information on each author needs to be included on the title page: full name, position title, place of employment, city, state, zip code, telephone numbers and e-mail address.

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ATTITUDES OF FBLA STUDENTS TOWARD TRADITIONAL BUSINESS VALUES AND THE AMERICAN ECONOMIC SYSTEM

Inder P. Nijhawan
Richard S. Ellis

Abstract

This study measured economic attitudes and values of a random sample of young Americans (high school seniors and Future Business Leaders of America members (FBLA) towards the American Economic System and its essential elements: profits, economic freedom, competition, corporate taxes, business ethics, advertising, and labor unions. The study suggested that the respondents (FBLA members) demonstrated less than affirmative attitudes toward economic and business issues than one would expect based on their training and economic education.

Young Americans' attitude toward the economic issues is an important determinant of the future of the private

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enterprise system. In a society where political and economic decision-making is decentralized, the right and responsibility to make decisions rests with individuals. Competent economic policies are, therefore, a function of economic understanding and attitudes of the masses toward profits, economic freedom, competition, government intervention, taxes, business, and the right to work.

Attitudes are widely accepted as a precursor of human behavior. According to Kunkel (1970),

> Attitude, thus, is simply a shorthand term for certain abstracted characteristics common to a number of behavior patterns which are frequently repeated whenever certain conditions prevail (p.70).

McClelland (1969) endorsed Kunkel's assertion when he equated attitude with "the probability of recurrence of behavior forms of a given type and direction." Since attitudes predict actions (particularly in the voting booth), a study of young Americans' attitudes may offer some insights into future economic policies and their impact on the American economic system.

Literature Review

Studies of attitudinal change in the area of economics are limited in number and scope. This shortcoming stems partly from the fact that until recently there was no widely accepted nationally normed attitudinal test instrument available for research. Jackstadt and Brennan (1983) were among the first to study the economic knowledge level and attitude of high school students toward the American economic system, business and labor unions. They were surprised to find not only a profound lack of understanding of the American system, but also downright hostility toward its important institutions.

Charkins, O'Toole, and Wetzel (1985) studied how student learning and attitudes could be improved by matching instructional style with student learning style. Using factor analysis, the authors explored the relationship between student score on attitude and expected grade, hours of study, percentage change in Test of Understanding College Economics (TUCE) score and the extent of difference in learning style and teaching style scores. They concluded that the students' learning and attitudes could be improved by developing instructional strategies that match with students' learning styles.

Hodgin (1984) developed an econometric model to study how performance information (as reflected in cumulative grade) affected changes in attitude, which in turn determined performance. Hodgin found that there is an interactive relationship between the students' attitudes and cognitive learning.

Ingels and O'Brien (1985) studied how learners' attitudes and values were influenced by instruction based on the textbook entitled, Our Economy: How it Works. They used the University of Chicago, Social Science Research Center's Economic Values Inventory instrument to measure student attitudes (the findings of the study are included in our discussion of the national sample).

In a subsequent study, O'Brien and Ingels (1987) used the Economic Values Inventory test to measure the instructional effectiveness of an economic course of study on the attitudes of younger adolescents. They claimed that the Economic Values Inventory test of attitudes satisfied acceptable standards of reliability and construct validity. They recommended the use of the test in economic education research.

Grimes et al (1989) examined the attitudinal change caused by the "Economics USA" courses by regressing attitude formation on economic learning, general learning, course format, student demographics, efforts, expectations and attitude of the students toward a televised course. The authors concluded that although Economics USA courses enhanced students' learning, they did not change the negative.

Walsted and Soper (1989) used nationally normed pre- and post-cognitive test data to explore how students' attitudes and economic understanding were affected by the type of course, student and teacher characteristics and school district's commitment to economic education. The authors concluded that students' learning and attitudes were positively related to teacher's knowledge level, school system's commitment to economic education and pure economics courses (as opposed to courses in which economic concepts are infused, such as social studies and consumer economics).

Marlin (1991) measured the effect of state-mandated economic education on teacher attitudes and its effect on student performance. Using a National Assessment of Economic Education data bank, Marlin concluded that state mandates had a negative effect on teachers' attitude (and hence on students' performance) unless accompanied by teacher training.

Phipps and Clark (1993) extended the Walsted and Soper study further by applying factor analysis to student economic attitudes. They used seven orthogonal attitude variables instead of summed attitude scores to further gain insights into the interaction between cognitive and affective learning.

Frey et al (1993) investigated how the attitudes of economics students differed from that of the general population. They attributed differences in attitudes to the characteristics of the students who chose to study economics rather than to the education they received. Agarwal and Day

(1998) showed how the Internet had a positive influence on student retention of economic concepts and attitudes toward economics.

Research Issue

The current study investigated economic attitudes and values of a random sample of the North Carolina seniors and Future Business Leaders of America students using a nationally normed Economic Values Inventory test. Future Business Leaders of America (FBLA) is a national youth organization for secondary school students enrolled in business subjects that include a fair amount of economic content. Business courses encompass a vast majority of the micro and macroeconomic concepts identified in the National Economic Standards and include specific competencies requiring an understanding of the free enterprise economy and the role of business in it (Tannenbaum, 1994). FBLA is designed to increase the students' business knowledge and acumen, and the organization functions to develop competent business leadership among its members. FBLA has several objectives. One of the objectives is to actively encourage interest in and understanding of the American enterprise system. It seeks to reward students who "develop projects **to increase understanding and support of the American enterprise system** within the school and/or community by developing information/education programs," (North Carolina State Department of Public Instruction, FBLA Guidelines, 1992, page 7).

Hypothesis

Considering the time and efforts expended on FBLA activities, and FBLA avowed objectives, it was expected that high school students who were members of the FBLA would have a predisposition to favor business and public policy that supported business interests. More so, because students self-select FBLA, and participation in it is not a required activity. Accordingly, it was expected that the FBLA students would have higher mean scores on the Economic Value Inventory Test (a measure of attitudes toward private enterprise and its concomitants) than the mean score of non-members of FBLA. Therefore, the null hypothesis was stated as follows: There were no differences in the economic value inventory test mean scores between high school students who were FBLA members and those who were not.

Methods

Performance in the affective domain was measured by the Economic Values Inventory Test (EVI) developed by the Social Science Research Center at the University of Chicago. The instrument was tested with a diverse national sample of 850 secondary students. It has proven construct and content reliability and, therefore, validity for research (O'Brian, 1987).

The initial survey consisted of 250 items. The number of items was reduced to 45 through the application of factor analysis. The eight (8) EVI scales, scale means, reliability and factor loading of individual items meet and in some cases exceed the required standards--Cronbach-alpha ratio of a minimum .50. (O'Brian, 1987).

The aforementioned instrument was administered to a random sample of 363 high school seniors in North Carolina and 350 FBLA members. The respondents were drawn from all of the North Carolina education districts. In order to ensure the inclusion of smaller and less financially endowed units, the schools were classified into type A and type B institutions. Type A institutions were secondary schools with a graduating class of 250 students or more. A senior class of 249 pupils or less was categorized as a Type B institution. Using random numbers, five (5) large and five (5) small schools were selected from the education districts.

Performance in the affective domain was measured by the Economic Values Inventory Instrument (EVI) mentioned earlier. The instrument has eight (8) EVI scales. Each of the scales is designed to measure a thematic area of economic attitudes. The explanation for each of the EVI scales is provided in the next section.

Results

How did the EVI scores of FBLA respondents compare with that of the North Carolina Seniors and the national sample?

Table 1 compares the EVI scale scores of the aforementioned groups. The national sample consisted of 850 high school seniors randomly selected from different high schools in inner-city, suburban and rural schools. The national sample is included for informational purposes only.

It is evident from Table 1 that the Economic Values Inventory test scores of FBLA respondents are statistically significantly different from those of North Carolina seniors in Scales 1,3,4,5,6, and 8.

Scale 1 of the EVI focused on the respondents' support for the American economic system and its ancillaries: profits, economic freedom and competition, need for saving, and importance of productivity as a determinant of standard of living. A low score in this category would suggest respondents' lack of support for the American private enterprise system and its essential elements. The FBLA respondents did not affirm their support for the American economic system (and its correlative elements: profits, hard work, occupational freedom, and competition) as strongly as the North Carolina seniors and the national sample. On a scale of 1 to 7, where 1 was "strongly disagree" and 7 was "strongly agree" the FBLA respondents had a mean score of 5.35 as compared to 5.61

Table 1

Mean Score on the Economic Values Inventory (EVI) for the National Sample, North Carolina High School Seniors, and Future Business Leaders of America Respondents

	Nat'l sample (N=850)	NC HS Srs (n=363)	NC FBLs (n= 350)
Scale 1:	5.40	5.61	5.35
(Economic System Support)			(4.65)***
Scale 2:	4.70	4.71	4.78
(Trust in Business)			(.96)
Scale 3:	2.80	2.70	2.88
(Alienation & Powerlessness)			(2.18)**
Scale 4:	4.90	4.46	4.59
(Government is Responsible)			(1.82)*
Scale 5:	4.00	4.18	3.94
(Against Government Role)			(2.31)**
Scale 6:	4.60	4.60	4.24
(Against Powerful Unions)			(4.75)***
Scale 7:	3.10	3.32	3.23
(Workers' Treatment is Fair)			(.96)
Scale 8:	4.80	4.42	4.65
(Against the Status Quo)			(3.10)***

Note: *Significant to the 0.10 level or better, one tailed test
**Significant to the 0.05 level or better, one tailed test
***Significant to the 0.01 level or better, one tailed test
t statistics are in the parentheses below FBLA.

and 5.40 for the North Carolina seniors and the national sample, respectively.

Scale 2 consisted of statements designed to gauge the respondents' perception of the image of the American businesses. Respondent's views were sought regarding corporate taxes, business ethics, advertising, and the need to expand the business role in decision-making. High scores in this scale would affirm respondents' distrust of business. The FBLA respondents did, however, moderately affirm the public responsibility of business, the desirability of greater voice of the business community in government, and the importance of lower corporate taxes. The FBLA respondents' mean score of 4.78 is not, however, statistically significantly different from the North Carolina seniors and the national sample.

Scale 3 was designed to investigate the psychological orientation of the respondents. It measures the strengths and weaknesses of the respondent's belief in an individual's ability to control his/her destiny and whether the economic system is exploitive in nature. A high score in this category would indicate that the respondents feel powerless and alienated from the system. One would expect that the FBLA respondents would score low on scale 3. However, their mean score of 2.88 is statistically significantly higher than the score of 2.70 and 2.80 respectively for the North Carolina seniors and the national sample.

Scale 4 addressed the issue of the social responsibility of the government and assessed respondents' views on whether the individual or the society is responsible for unemployment and poverty in the system. A high score in this category would indicate respondents' affirmation of the social responsibility of the government. All groups failed to consider the possibility of a conflict between the free enterprise system (Scale 1) and the role of the government in providing a safety net for the unfortunate (Scale 4). Contrary to expectations, the

FBLA respondents' mean score of 4.59 indicated that they were more supportive of government social welfare responsibility than the North Carolina seniors.

Scale 5 dealt with the role of government in price setting. Low scores in this category are indicative of respondents' lack of support for government control of prices. The FBLA respondents seem to be neutral on this issue with a mean score of 3.94 compared to 4.18 and 4.00, respectively for the North Carolina seniors and the national sample.

Scale 6 polled the respondents regarding their views on labor unions. A high score in this scale would indicate that the respondents are against powerful labor unions and would like to see their influence reduced. An overall mean score of 4.24 for the FBLA respondents compared to the mean score of 4.60 for both North Carolina seniors and the national sample indicated that the FBLA respondents were only moderately opposed to strong labor unions in our economy.

Scale 7 was concerned with whether or not workers are treated fairly. A low score in this category would be indicative of respondents' agreement with the unfair treatment of workers by businesses An overall mean score of 3.23 for the FBLA respondents indicated that they moderately disagreed with the statement that our system is exploitive.

Scale 8 dealt with income distribution and equality of opportunities in our society. A high score in this category would indicate that respondents agree that income and opportunities are unequally distributed in the society. The FBLA respondents with a mean score of 4.65 affirmed that there is unequal income distribution in our society and that there is a need to change the status quo.

Conclusions

The avowed objectives of the FBLA are to enhance business knowledge and skills and to promote business leadership among its members. It encourages an interest in and understanding of the American private enterprise system. While FBLA also has other organizational objectives, its focus on promoting an understanding of and appreciation for the American private enterprise system is laudable. More so, because the research shows that performance in the affective domain may be influenced by success in the cognitive area (Grimes, 1989).

This study suggested that the FBLA respondents demonstrated less affirmative attitudes toward economic and business issues than the North Carolina seniors and the national sample. The economic attitudes of the FBLA respondents are surprising, considering their moderate support for the American enterprise system, moderate affirmation of support for and trust in business, liberal attitude toward the role of government in price setting and income distribution, unexpected affirmation of the unfair treatment of the workers, and moderate opposition to strong labor unions.

It is ironic that the attitudes described above characterize the next generation of potential business people who are beneficiaries of the experiences that are designed to promote a better understanding of and appreciation for the private enterprise system.

Implications/recommendations

Attitude formation is a complex process, which is influenced by a variety of student characteristics and socio-economic variables. These variables include, race, sex, parental education, marital status of the parents, number of hours spent watching television, magazines/newspaper read, grade point average in business and economics courses, number of hours student is employed, and membership in an organization. As a sequel to this paper, it would be interesting to formulate a regression model incorporating some or all of the aforementioned variables to explain the difference in attitudes of FBLA students and the North Carolina seniors. It was evident that since organization membership was only one of the many variables that determine attitudes, FBLA can not by itself shape attitudes of its members. However, it will be helpful to engage the FBLA members in more entrepreneurial activities. These activities could include collaborating with the Junior Achievement Organization and the local Chambers of Commerce. Other strategies could include discussing business and economic issues (excellent resource materials are available through the National Council on Economic Education, see their Web site: www.economicsamerica.org) and more interaction with successful business leaders.

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BUSINESS EDUCATION IN COHORTS: DOES FAMILIARITY BREED LEARNING?

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Sri Sitharaman

Abstract

This article reports on multiple-site research that sought to determine possible differences in learning outcomes when students are in programs formatted as cohort (lock-step with students staying together through multiple courses or experiences) v. non-cohort groups. Students in matched pairs of classes from cohort and non-cohort programs, including six business administration classes, were surveyed to investigate possible differences in affective and cognitive learning, as well as in the transfer of learning to work settings. While the data reveal high learning levels in both formats, significant differences appear in greater affective learning among students in cohort programs, suggesting that bonds forged in ongoing groups may have some learning benefits.

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The changing demographic profile of learners on college campuses and in the workplace has inspired remarkable creativity in the development of course and program formats aimed at accommodating students who are savvy consumers and busy professionals. For at least two decades, program administrators and instructors involved in business education have launched innovative schedules (e.g., weekend programs, evening courses, lunch seminars) and new structures (e.g., internet courses, interactive video classrooms, computer based collaborative learning) that recognize the logistics of students' multiple lives at work and at home (Adelman and Reuban, 1984; Dede, 1996: East, 1988; Kerr, 1994; Thompson, 1985).

One formatting option that has facilitated such responses is cohort grouping, a learning arrangement with a required sequence of courses/seminars and with student groups that stay in tact throughout all or most of their work toward an academic degree, a certificate or program completion. This type of program formatting is increasingly familiar in "executive" or "professional" MBA programs and in on-site training endeavors with multiple components over an extended time period. It contrasts with "stranger groups" common in traditional post secondary education programs.

In addition to enabling non-traditional scheduling at convenient times (often weekends or after work, and often with four-hour or longer class periods meeting only several times a month), cohort programs have been viewed as means of forming cohesive groups of adult learners who spark valuable interaction in and outside the classroom and who support and motivate each other toward program or degree completion (Reynolds and Hebert, 1995). They also have been valued for the cost efficiencies they attain through "economies of certainty" that assure exactly who and how many will be in each class or program session (Massy and Zemsky, 1990).

The potential learning outcomes of cohort groupings, however, have not been an area of inquiry, although such study could provide important information for administrators planning educational programs. A 1992 (Scott and Conrad) review of research found numerous studies of the extent and learning impact of intensive courses; and evening classes and modular courses also have been the subject of at least some outcome investigation (Conrad and Pratt, 1986; East, 1988; Woodruf and Mollise, 1995). However, cohort class formatting has been the subject of only limited investigation. Beyond anecdotal reports, little is known about how lock-step learning among a group of familiar classmates might vary from learning in programs formatted for classes of stranger groups.

The Cohort Learning Impact Study

The focus of this study was on the impact that cohort grouping of students in professional post-secondary programs might have on their levels of learning. It was aimed at extending earlier research by Reynolds and Hebert (1995) that found significantly greater in-and out-of-class interaction and greater group cohesion among cohort students when compared to non-cohort students in the same degree and certificate programs. Although the study was conducted on college campuses, the findings may also have relevance to programs in the workplace or elsewhere. The study aimed at developing data that could support efforts of business and academia to develop learning experiences that meet the needs and preferences of learners and meet learning outcome goals.

Earlier findings about the stronger cohesion and interaction among cohort students suggest the possibility of highly favorable outcomes from lockstep formatting and familiar faces in the classroom -- especially in light of studies that have demonstrated the positive influence of peer learning, collaborative learning, and student-faculty interaction and other socializing agents on educational outcomes (Lacy, 1978;

Pascarella, 1980; Smith, 1977; Terenzini, Theophilides & Lorgan, 1984). However, these studies demonstrate indirect effect at best, with cohort grouping influencing learning only to the extent that it can influence student behaviors. The possibility of indirect learning effects from cohort arrangements is less appealing in light of research demonstrating that numerous variable influence learning outcomes in a manner that is cumulative and interrelated, rather than specific to any one or more variables (Pascarella, 1989; Terenzini, Springer & Pascarella, 1993). Thus, it does not follow that gains in interaction and cohesion lead, in and of themselves, to enhanced learning. In fact, Davis (1969) found that cohesive groups can suffer from distracting social interaction that contributes to reduced likelihood of goal attainment.

In recognition of the somewhat equivocal findings that can be related to cohort formatting, the study reported here was conducted as a logical next step in determining whether cohort group educational formats might be associated with learning outcomes that differed from those of "stranger" groups found in traditional higher education classrooms. Specifically, it was designed to address: "What are the learning outcomes of students in professional educational programs with cohort structures, and to what extent do they differ from the learning outcomes of students in programs with non-cohort (stranger group) structures?"

"Learning outcomes" were framed in this study by a taxonomy suggested by Astin (1973) which views post-secondary educational impact in terms of the interaction of time span with two types of learning outcomes, cognitive and affective, and two types of data, psychological and behavioral (see figure 1). Cognitive development, as defined in this study and others, refers to intellectual processes such as knowledge acquisition, communication, analysis, special skills and aptitudes, critical thought and reasoning. Affective development is in the domain of personal maturation and

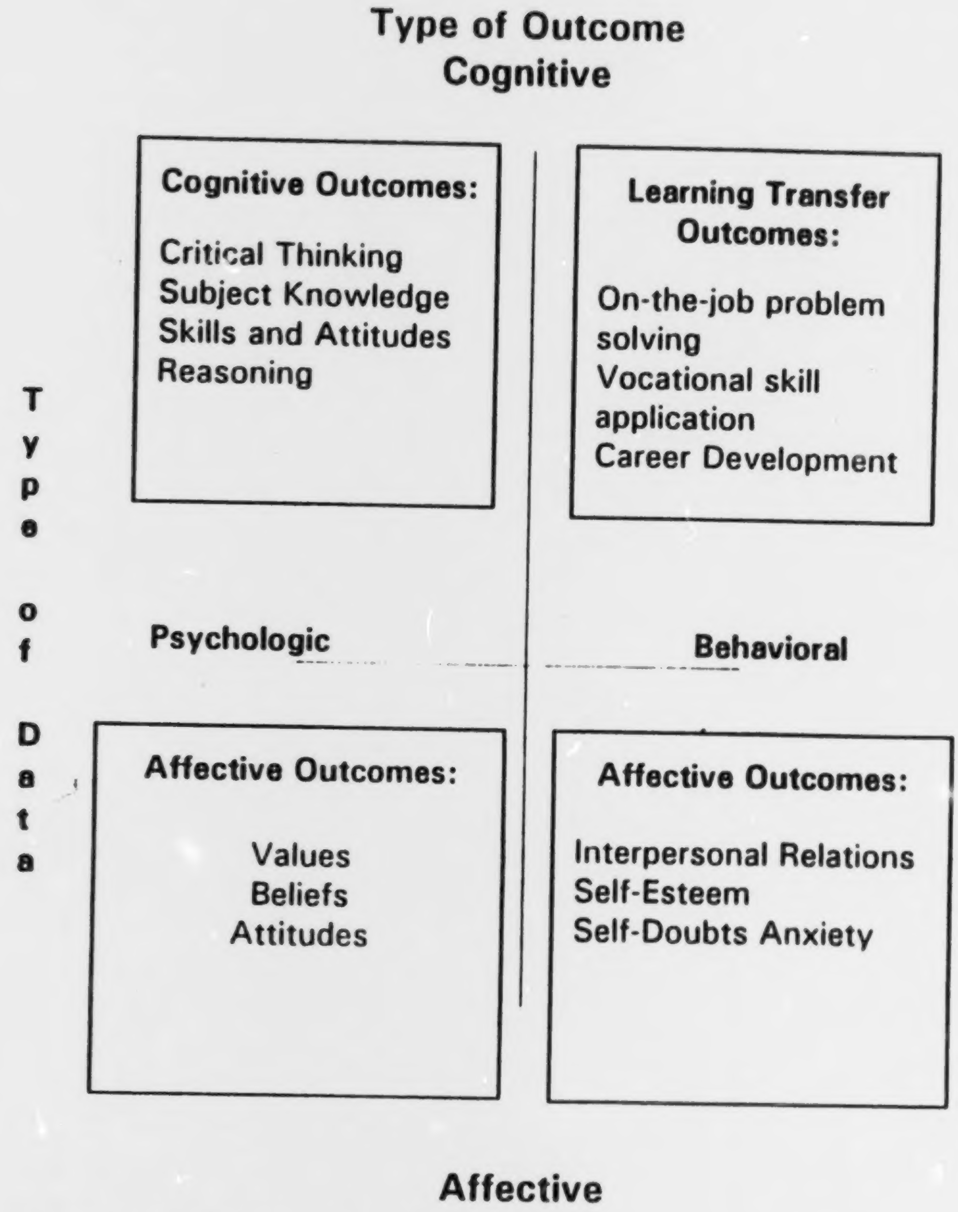
Type of Outcome
Cognitive
Cognitive Outcomes:
Critical Thinking
Subject Knowledge
Skills and Attitudes
Reasoning
Learning Transfer Outcomes:
On-the-job problem solving
Vocational skill application
Career Development
Type of Data
Psychologic
Behavioral
Affective Outcomes:
Values
Beliefs
Attitudes
Affective Outcomes:
Interpersonal Relations
Self-Esteem
Self-Doubts Anxiety
Affective

Figure 1: Adapted Learning Outcome Classification*

includes attitudes, values, beliefs, self esteem, and interpersonal competencies.

Cognitive and affective learning may be investigated through behavioral data, or observable activities, but are also available through psychological data concerning the self-reported mental state. In fact, in the affective realm of values, esteem and other areas, psychological reports may be more enlightening than behavioral interpretations. For this study, as seen in the figure, the affective behavioral and psychological information have been collapsed together into one outcome category. However, the cognitive outcomes have been distinguished in two separate areas as "cognitive outcomes" and "learning transfer outcomes." The learning transfer outcomes are the cognitive outcomes demonstrated through behavioral data and include the application of cognitive learning in real-life settings as problem solving, skill application, career development, planning and others.

These outcome dimensions--cognitive learning, affective learning and learning transfer--comprise the dependent variables of the cohort learning impact study. The impact of the program format variable, cohort or non-cohort, on these outcomes is the issue of investigation. The final framework becomes an adaptation of the original Astin (1973) matrix.

Method

The cohort learning study used matched pairs of classroom groups at five institutions of higher education to collect data about student learning. Six groups representing professional degree programs scheduled in traditional, non-cohort formats were matched with six groups representing the same degrees at the same institutions (and with similar entrance and graduation requirements, as well as many of the same faculty) in cohort formats. For example, three groups of MBA students in traditional format programs on three campuses were matched with three groups of MBA students in cohort format programs on the same campuses. The institutions hosting data collection were: the University of Utah, Georgia State University, American University, University of South Carolina, and Winthrop College. In addition to the three pairs of business administration classes, data were collected from two Master of Public Administration (MPA) cohort groups and their non-cohort matches and one matched pair of Educational Administration classes.

The study group was limited to students who had completed at least six courses in their required program of study. Usable data came from 342 students, including 156 in business administration programs. The matched-pair design increased confidence that data could reveal program format influences, since the use of the same entrance and degree requirements enhanced control of pre-program characteristics and variable program content influences.

Learning outcomes were measured by grade-point averages and the results of a student self-report survey. While the GPA data demonstrates students' academic achievement, the survey reports learning acquired in the dependent variable areas of cognitive, affective and learning transfer. Those three areas constitute the three survey scales, with items within each rated on a five-point Likert-type format ("strongly agree" to "strongly disagree"). Development of scale items was guided by such sources as the Omnibus Personality Inventory (Heist & Yonge, 1968), the Critical Thinking Appraisal (Watson & Glaser, 1964) and a self-report index of critical thinking behavior (Chickering, 1972). The items comprising the affective learning scale ask questions about esteem, intellectual curiosity, values, interpersonal interactions and anxieties. The cognitive learning scale items seeks information on knowledge acquisition, skill development, concept use, analysis and critical thought; while the learning transfer dimension is represented by questions about the practical use of subject matter and various interpersonal interactions. The cognitive learning scale has an internal consistency reliability (Cronbach's Alpha) coefficient of 0.86, while the affective learning scale yields a coefficient of 0.81, and the learning transfer scale computes at the 0.82 alpha level.

Findings

Table 1 shows the overall data from students in the three professional fields of study at five institutions, categorized in a variety of demographic variables and noted as being in cohort or non-cohort classes. In each area, students reported substantial agreement with statements about their learning on the five-point scale. The highest level of reported accomplishment was in the area of learning transfer, the practical use of academic learning outside the classroom in areas of knowledge and skill application, problem solving and career direction.

Only in the affective learning area did cohort and non-cohort students have significantly different learning outcomes. In that dimension, cohort students taken together reported significantly higher learning gains than do their non-cohort counterparts ($p<0.01$). This finding is particularly dramatic among students who have completed fewer than eight classes toward program completion. Affective learning gains reported by cohort students reduce somewhat when they have been in their programs longer. Male students, younger adult students (ages 24-29) and full-time students reported significant affective learning gains.

Grade-point averages, used as a general measure of academic accomplishment, were slightly higher among cohort students, but the differences were significant only among educational administration students and not significant when considered in the aggregate among all students surveyed.

TABLE 1

Learning Outcome Comparisons in Cohort and Non-Cohort Programs (n = 342)

	Affective learning			Cognitive learning			Learning transfer		
	CM	NCM	t	CM	NCM	t	CM	NCM	t
Gender									
Male	3.78	3.55	3.09**	3.91	3.84	0.92	4.13	4.11	0.25
Female	3.68	3.62	0.66	3.82	3.89	-0.68	4.26	4.16	1.08
Age									
24-29	3.99	3.63	3.16**	3.91	3.90	0.05	4.31	4.08	1.58
30-39	3.71	3.53	1.82	3.84	3.88	-0.35	4.12	4.16	-0.42
40-49	3.72	3.70	0.07	3.91	3.98	-0.27	4.25	4.25	0.00
>50	3.69	4.11	-0.91	3.83	4.38	-1.06	4.00	4.40	-0.84
Student status									
Full-time	3.72	3.55	2.32*	3.87	3.85	0.49	4.16	4.16	0.00
Part-time	3.78	3.63	1.52	3.88	3.89	-0.11	4.24	4.08	1.49
No. classes completed									
≤ 8	3.82	3.58	3.29***	3.92	3.85	0.86	4.21	4.13	1.06
>8	3.54	3.58	-0.32	3.78	3.88	-0.91	4.11	4.13	-0.16
Overall total	3.74	3.58	2.72**	3.88	3.86	-0.19	4.18	4.13	0.85

CM = Cohort mean, NCM = Non-cohort mean

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

NOTE: 1 = Strongly disagree (with positive statement about experience since entering program); 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree

Table 2 presents a summary of how the students in business administration cohort programs and non-cohort programs viewed their learning, as well as their GPA data. The business students in cohorts were generally older than their non-cohort counterparts, and that age difference was much greater in the business education area than the age differences among respondents from the fields of educational administration and public administration. Nevertheless, business response patterns concerning cohort v. non-cohort learning outcomes followed closely those of the combined respondent group (Table 1). Cohort students in business administration programs reported somewhat higher learning

TABLE 2

Learning Outcome Comparisons of Business Students in Cohort and Non-Cohort Programs (N = 156)

	Affective learning:			Cognitive learning:			Transfer learning:		
	CM	NCM	t	CM	NCM	t	CM	NCM	t
Gender									
Male	3.69	3.51	1.73	3.84	3.85	-0.03	4.07	4.06	0.09
Female	3.65	3.49	0.96	3.78	3.74	0.19	4.31	3.99	2.00*
Age									
24-29	3.81	3.61	0.96	3.50	3.86	-0.53	3.90	4.01	-0.53
30-39	3.61	3.46	1.18	3.79	3.92	-0.88	4.08	4.13	-0.31
40-49	3.73	3.76	-0.12	3.91	3.94	-0.07	4.27	4.00	0.67
Student status									
Full-time	3.69	3.48	1.84	3.87	3.81	0.49	4.12	4.13	-0.01
Part-time	3.64	3.53	0.79	3.71	3.80	-0.65	4.19	3.91	1.70
No. classes completed									
≤8	3.75	3.59	1.38	3.89	3.75	1.04	4.17	4.04	1.20
>8	3.38	3.46	-0.49	3.56	3.84	-1.86	4.00	4.03	-0.20
Overall total	3.68	3.50	2.02*	3.83	3.81	0,21	4.14	4.04	1.21
GPA total									
3.0-3.3	n = 10	n = 13							
3.4-3.7	n = 34	n = 35							
3.8-4.0	n = 34	n = 30							

CM = Cohort mean, NCM = Non-cohort mean

* $p<0.05$

NOTE: 1 = Strongly disagree (with positive statement about experience since entering program); 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree

gains in all three areas, but significant gains only in the affective learning domain.

Business students reported their highest overall gains in the area of learning transfer, indicating that students do find their classroom learning highly useful outside class. Unlike their counterparts in the other two professional fields surveyed, female business students in cohort programs reported significantly higher learning gains in the arena of learning transfer than did female non-cohort business students $(p<0.05)$.

Summary and Conclusions

For the most part, the data indicate there are more areas of similarity than difference in learning outcomes among the cohort and non-cohort students in the programs studied. Viewed in the aggregate, comparisons between all cohort and non-cohort groups showed slightly higher cohort student learning on affective, cognitive and learning transfer dimensions. However, these aggregate differences were significant only in terms of the affective learning scale (Table 1). The business administration program results followed closely the pattern of combined findings for the three fields of study. Business cohort program students reported slightly higher cognitive and learning transfer gains than non-cohort students and significantly higher affective learning gains (Table 2).

Within the affective domain, the greatest differences between cohort and non-cohort programs indicated that males in cohort groups and students under 30 in cohort groups perceived higher gains in learning than their counterparts in non-cohort programs. It is possible, although speculative, that gender and age played a part in the baseline starting point of affective development, leading to more or less available "room" for gains in that area. This factor may be particularly true in the affective area of values, esteem, interpersonal relations and personal beliefs. It is not surprising to find these elements the subject of greater gains in settings where support and cohesiveness may have created atmospheres for wide-ranging dialogue and reflection.

Given the differences in ages of the business cohort and non-cohort students, with a mean of 38 years old and a non-cohort mean of 30 years old, it is possible that age was a factor in reporting about cohort v. non-cohort learning. However, the age differences in the cohort v. non-cohort students surveyed from the two other fields of study were much smaller, and their reported learning outcomes were not significantly different from those in the business field. Researchers who have studied older students note they have different motivations from younger students when they enter a learning program and, often, less inclination to forge social classroom relationships (Cross, 1981; Sewall, 1984). In addition, adults are particularly responsive to interactive learning processes utilizing life experiences (Brookfield, 1986; Knowles, 1980), which may be more prevalent in cohort programs, especially those scheduled in intensive time frames.

When grade-point averages were used as a measure of academic accomplishment, students in business cohort groups showed a very slight advantage over those in the matched non-cohort groups, but no significant difference. This finding would indicate that students who enter the two types of programs with the same requirements and are subject to the same requirements while in the programs are not influenced by their different classroom environments to "succeed" differently on tests, papers, in-class participation and other elements of the grading mix.

In sum, the results of this study of learning outcomes are less dramatic than the earlier Reynolds and Hebert study (1995) that indicated significantly greater interaction and cohesiveness in cohort groups. Together, these results could raise questions about widely suggested links between educational outcomes and in- and out-of-class interaction. Or, they might lend support to the idea that distracting social interaction can eventually cancel out learning gains in cohesive groups (Davis, 1969). However, a more holistic conclusion can be formed by a 1995 study of influences on critical thinking development, which prompted the authors to appeal for learning outcomes research that can "take into account the multiple sources of influence that span the entire college experience" (Terenzini, et al., p. 36).

Educational program administrators need to consider influences on learning outcomes when considering program scheduling and formatting. The development of cohort program arrangements frequently are guided more by market needs and preferences than by determinations of effects on learning. Fortunately, however, researchers are finding that cohort groupings do not have any negative consequences related to learning outcomes. In fact, in some areas, cohorts appear to constitute a contextual factor that can contribute to enhanced student learning and development.

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BUILDING EFFECTIVE WORKFORCE DEVELOPMENT SYSTEMS: CORE PRINCIPLES

Reid A. Bates

Abstract

For the past decade efforts have been underway in communities and states across the US to build workforce development systems that meet the needs of business, are responsive to all employable individuals, and which enhance local, regional, or national economic performance. There is growing recognition that such systems are an integral part of world-class economies. This paper describes a set of ten principles guiding the development of high-performance workforce development systems. The principles grew out of a research project that identified and articulated the critical components of effective workforce development systems.

Workforce development (WFD) systems are integrated collections of public and private education, training, and employment support services designed to meet the human resource needs of organizations, communities, and nations. When effective, these systems can be a cornerstone of sustainable economic development. For example, they can function as key resource for communities, states, and nations as they seek to attract high-growth businesses and foster economic development (Bessant, 1991; Galhardi, 1998).

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They can support the economic viability of organizations and communities by developing human resources to meet the needs of a dynamic economic environment. Successful WFD systems also benefit individuals by building their potential for success in the world of work and their capacity to make positive contributions to the communities in which they live (Bailey, 1990).

Many WFD systems in the US, however, are not fulfilling these expectations. These systems have, to varying degrees, been ineffective in meeting employer needs for skilled workers, helping individuals develop marketable job skills and find work, fostering economic development, and enabling business and industry to achieve and maintain competitive advantage. There are four major reasons for this failure:

1. The lack of overall policy or strategy at community, state, and national levels for investing in the development of human capital. For example, until the passage of P.L. 105-220, the Workforce Investment Act of 1998, local and state efforts at workforce development were not aided by comprehensive WFD policies or strategies at the national level.
2. The new skills and abilities demanded by high-performance organizations today have not been those traditionally learned on the job or through participation in the formal education system. A number of reports have emerged in the last decade that document these higher order workplace competencies (e.g., Secretary's Commission on Achieving the Necessary Skills, 1991; 1992) and point to the current ineffectiveness of public sector education and training programs to reflect labor market realities.
3. WFD systems have not been well integrated with anti-poverty, social service, or economic development programs and strategies (Blalock, 1993).

4. WFD systems have not been coordinated internally. Historically, WFD systems have been composed of categorical, uncoordinated programs and services separated by legislative silos. The net effect has been a confusing array of programs that overlap functionally, are not coordinated with one another, and are unproductive in meeting workforce development needs.

These factors have provided a major stimulus for rethinking the basic tenets of WFD system design and content in the US. The transformation of current WFD systems into comprehensive, integrated systems has become one of the most important priorities facing communities today. In order for our local and national WFD systems to fulfill their potential, it is imperative that we as educators and human resource development professionals have an informed vision of what these systems must contain and how they must work to be effective. The purpose of this paper is to describe the key concepts and principles underlying high performance WFD systems.

Project Overview

This paper summarizes the results of a research project conducted in 1997 for East Baton Rouge Parish, Louisiana, by the Louisiana State University Human Resource and Leadership Development Program. The impetus for the project was recognition by local governmental officials of the need for a comprehensive, strategic agenda to guide efforts to transform the current WFD system in this community into an integrated, comprehensive, customer-friendly, and effective WFD system. The goals of the project were to:

- Identify and articulate the critical dimensions of high-performance WFD systems. High-performance WFD systems are those that optimize the fit between system elements (people, service providers, processes, information, technology, or sub-systems) in ways that enable the system to meet or exceed its performance goals (Nadler & Gerstein, 1992).

- Set feasible yet challenging standards to guide operational planning and WFD system design efforts.

This paper encapsulates the results of the research effort into a set of 10 core principles of workforce system development. These core principles represent the best contemporary thinking about the critical components needed for high-performance WFD systems.

Method

There exists a substantial body of literature, both national and international, focusing on the theory, philosophy, methodology, and experiences of workforce development systems. The present study conducted an extensive review and analysis of this literature. Based in this review, the essential attributes of high-performance WFD systems were identified and synthesized into a draft document.

The content validity of the draft document was established through a process of review and revision by a panel of experts. The draft document was submitted for evaluation to nineteen nationally recognized experts from a wide variety of fields relevant to workforce development including economic development, program measurement, educational and occupational standards, political science, public administration, social work, psychology, vocational education, primary and secondary education, higher education, extension education, adult education, human resource development, management, and human ecology. The reviewers were directed to review the draft document using the following criteria:

- Comprehensiveness of the standard domains.
- Theoretical soundness and internal consistency.
- Relevance and completeness of outcomes.

- Representation of all population groups.
- Adequate and accurate coverage of the reviewer's domain of expertise.
- Usefulness as a strategic planning tool.
- Recommendations for additional resources to be examined or modification of content.

A series of structured telephone or face-to-face interviews were conducted to register reviewer's evaluation of the document along these criteria. Interview documentation consisted of a combination of direct quotations and summary statements that were recorded to register the reviewer's responses to the draft document. Subsequent to each interview session, a written report incorporating the interviewer's notes and reviewer comments and recommendations was prepared. The reports of individual interviews were then compiled into a master report that was evaluated by the project team to identify areas where additional research or document modification was needed. Key revisions and areas requiring further research suggested by the reviewers included:

- Expanding the emphasis on employer participation in WFD systems and how that might be fostered.
- Providing more information on the role and importance of market-based principles (e.g., provider competition) and how these may be implemented.
- Clarifying the governance framework for the WFD system.
- Detailing a clear framework for implementation including priorities, timeline, and details on how to start the process
- Building adult literacy as a fundamental component of the standards.
- Providing more detail on structure and content of quality standards for provider certification.

The information generated from the additional research and the recommended modifications were synthesized into a final report (see Holton, Bates, & Naquin, 1997).

Results

The result was a set of 44 quality standards, each tied to one or more performance criteria, that reflect critical components of high-performance WFD systems. Although the number, detail and complexity of the standards and performance criteria precludes presentation in this paper, their essence is effectively captured in the set of 10 core principles described here.

The 10 core principles were derived through content analysis of the 44 standards and associated performance outcomes. The goal of the analysis was to discover a summary set of common elements that could be articulated as thematic principles vital to the functioning of high-performance WFD systems. The first step in this analysis involved reading and re-reading the standards and outcomes to assure an intimate understanding of their individual and collective meaning. Interpretative notes were made during the course of the readings that began to suggest common categories running through the standards and outcomes. The second step of the analysis involved theme generation or the identification of regularities in the data. Here the goal was not to find exhaustive and mutually exclusive themes, but to find themes that were internally consistent and sufficiently distinct from one another to be meaningful. The themes represented initial statements of the core principles, and were "analyst-constructed typologies" (Patton, 1980, p. 309) created by analyzing and making judgments about what was significant and meaningful in the data. The final step in the analysis involved evaluating the emergent principles for their informational adequacy, usefulness, and centrality to the development of high-performance WFD systems.

Conceptualizing Workforce Development Systems

A key goal of WFD systems is to give all citizens the opportunity to be fully employed and have access to the development opportunities needed for a full and productive life. Thus WFD systems are conceived in the broadest sense, as organized collections of programs and services designed to meet the work-related development needs of all unemployed and employed persons. This means that WFD systems provide individuals with opportunities for job-specific and non-job-specific development. Non-job-specific development is work-related development that is not tied to a single job or organization but has applicability across jobs or organizations. It includes such things as basic skills, workplace literacy and career development.

Core Principles

The core principles represent foundation elements central to WFD system functioning. They can be applied to WFD system planning at the community, state or national level.

Principle 1: The development, management, and operation of the WFD system are based on systems principles.

Systems principles are key to understanding the development, management, operation of WFD systems for two fundamental reasons. First, the process of workforce development is accomplished through the activities of a collection of interdependent, complementary, reinforcing, and organized components or subsystems. Second, WFD systems also function within a larger complex of political, economic, social and cultural forces. Systems principles help us understand the nature and form of the interconnections between WFD system parts as well as how these interconnections are influenced by larger social forces. Because system principles provide a mechanism for understanding these system principles provide a mechanism for understanding these interactions, they provide policy-makers, program managers, service providers, participants, and others with an important perspective and tool to use in managing these complex and dynamic systems.

Principle 2: The components of high-performance WFD systems are integrated to provide a comprehensive education and training system.

Comprehensive WFD systems encompass a wide range of education, training, and support components. This includes, for example, state and federally supported job training and retraining programs, employer provided training, post-secondary training and education, military training programs, the K-12 system of education, adult basic education programs, trade and union training, and other elements. Therefore a major emphasis for high-performance WFD systems must be the establishment of an integrated, articulated, sequential series of education and training activities that individuals can use to progress from relatively low knowledge and skill levels to higher knowledge and skill levels (Grubb, 1996a; National Center on Education and the Economy, 1995). This articulation should include all levels within the formal education system, and extend to school-to-work, adult basic education, continuing education, and work-based learning programs (New York State Department of Labor, 1996; New Jersey State Employment and Training Commission, 1996). Integration of these various components is achieved through a system of coordinated and interdependent program policies, goals, benchmarks, performance objectives, and quality standards. This requires the establishment of a process for achieving inter-program and inter-agency communication, issue deliberation, planning, and consensus building (Trott & Baj, 1996). It also requires an information management system that uses common terms and definitions, includes data elements that conform to a uniform set of criteria, and includes network of linkages to facilitate inter-program and inter-agency communication (Workforce Coordinating Council, 1995).

Principle 3: High-performance WFD systems are built on the principle of partnership.

Effective partnerships are critical for the long-term success of WFD systems. All WFD stakeholders, both public and private, must work together in setting goals, system coordination and oversight, the design of skills and certification systems, and the development of labor market and provider information systems. The development of productive partnerships depends on the effectiveness of a strategic planning process that seeks to achieve stakeholder consensus on WFD system problems, goals, and priorities.

Productive WFD partnerships also depend on the energetic participation of business and industry in a wide range of WFD support activities. Unfortunately, little is known about what it takes to involve employers in these activities or what strategies are effective for encouraging employer involvement (Osterman, 1995). Despite evidence of a number of potential benefits to participation in WFD activities, such as development of a more skilled labor force, enhanced public relations, and the availability of low cost labor, many believe that gaining widespread cooperation of employers in WFD activities will be challenging. Although some organizations have benefited from good returns on their investments in WFD activities (e.g., Gordon, 1999), many believe the costs are unacceptably high (Bailey, 1995) and see the difficulties of working with public sector education and training programs as overly problematic. Incentive systems are therefore needed to ensure that employers realize value from WFD system participation. A number of credible incentives have been suggested including a training tax, wage subsidies or tax credits (Bishop & Montgomery, 1993), grants or vouchers for employer-provided training, or other strategies.

Principle 4: High-performance WFD systems achieve accountability through outcome measurement and the use of performance standards for all service providers in the system.

The focus on performance measurement is designed to move WFD systems beyond simply monitoring, reporting, and reviewing results against strategic plans, to a commitment to evaluate the efficiency and effectiveness of programs within the system and of the overall system itself. Done properly, evaluation links measurable objectives, system expectations, and performance with system goals. It also provides a feedback link so that continuous improvement becomes an integral component of the system. Implementing this principle establishes responsibility for outcomes and focuses the WFD system on meeting the needs of customers and on market responsiveness.

Performance measurement highlights the need to achieve results, not simply track inputs and processes. It is the core of any evaluation and accountability scheme. In the past, measures of success for various WFD programs have been developed independent of one another, with the result that data elements and definitions often vary substantially from program to program. Consequently there was little or no consensus on what success is or how to measure it. What is needed is a coherent set of outcome-based performance standards against which all WFD programs can be assessed.

To be effective the performance measures must reference a common set of WFD system goals and be consistent across programs. The most effective measures are those that focus on one of three major outcome categories: participant competency (e.g., SCANS competencies), participant returns (e.g., employment earnings, certification rates of program participants), and customer satisfaction (Baj, Sheets, & Trott, 1996; McCarthy, 1994).

Principle 5: High-performance WFD system design is based on sound performance management principles.

Performance management integrates systems principles with evaluation and accountability. It is a key function for communicating direction, promoting policy coordination, defining roles, tracking and improving program performance and allocating resources (Sheets & Stevens, 1992). An effective performance management scheme establishes a framework of accountability that translates system goals and objectives into a continuous performance improvement cycle (Baj et al., 1996). This cycle continually examines and validates quality and performance standards, diagnoses performance problems, and provides the impetus for ongoing system transformation.

Because of the complexity surrounding WFD system design and the process of performance management, it is necessary to use models to simplify and guide the process. The framework for the development of WFD systems presented in Table 1 adapts a model originally presented by Swanson (1994). This model provides both a conceptual guide to WFD system development as well as a theoretical underpinning for WFD system design standards. This model outlines three levels of performance (community, process, and citizen) matrixed with five performance variables (mission/goal, system design, capacity, motivation, and expertise). Improvement of WFD systems is dependent on a thorough understanding of these performance variables and their functioning at different levels of performance. The questions included in the matrix can be used to identify WFD system performance strengths and weaknesses and therefore provide a basis for system improvement. The matrix also provides a general framework to guide the design or redesign of WFD systems.

Table 1

Workforce Development System Performance Diagnosis Matrix (Holton, Bates, & Naquin, 1997)

	Community Level	Process Level	Citizen Level
Mission/Goal	Do the community WFD goals reflect the current economic, political, and cultural forces?	Do the WFD processes enable the community to maintain a world class workforce and offer high quality jobs to citizens?	Are the professional and personal goals of citizens congruent with the community WFD goals?
System Design	Does the community provide structure, laws, and policies supporting WFD?	Are the WFD programs designed to work as an integrated system?	Do citizens face obstacles that keep them from participating in the WFD systems, or impede their job performance?
Capacity	Does the community have the leadership, capital, programs and infrastructure to achieve its WFD system goals?	Does the WFD system have the capacity to meet the needs of employers and citizen customers in terms of quantity, quality and timeliness?	Do citizens have the basic mental, physical and emotional capacity to perform?
Motivation	Do the policies, culture, and reward systems support WFD?	Does the process provide the information and support factors to maintain it?	Do citizens want to develop high levels of work skills?
Expertise	Does the community establish and maintain policies and resources to select and prepare WFD providers?	Does the process of developing work expertise meet the demands of dynamic work environments?	Do the citizens have the knowledge, skills, attitudes, and experiences needed for high quality jobs?

Principle 6: High-performance WFD systems are market oriented.

This principle specifies that WFD needs are best addressed through market-oriented strategies. These strategies should include:

- Government adoption of the role of catalyst in WFD system investment, leveraging private sector investment and public-private ventures, and using incentives and sanctions to encourage private sector investment and public-private cooperation.
- The development of criteria and processes that establish the market-place relevance of education and skill standards addressed by the WFD system.
- Facilitating customer empowerment to promote greater responsibility and control on the part of individual consumers as they participate in the WFD system. One widely used strategy is to provide a range of easily accessible WFD information to individual consumers as a means of improving consumer decision-making. Such a system, often based on the concept of a one-stop center, should provide consumers with a wide range of programmatic information, service provider performance data, economic development planning, labor market planning, and occupational supply and demand data (Workforce Coordinating Council, 1995). Other important customer empowerment strategies include career counseling and case management systems that maximize the WFD system's value to individual consumers (Council of Great Lakes Governors, 1993), and the use of direct consumer funding (e.g., voucher systems) to provide individual consumers with more power to direct their investment in the WFD system (Sheets & Stevens, 1992).
- Market-oriented WFD systems include policies supporting competition between program or service providers. One major problem with many WFD systems is the lack of competition in service provider arrangements. This has, in many cases, produced provider monopolies, restricted production arrangements, and promoted preferred provider designations. Policies supporting competition should include those stipulating separation between

administration and service delivery. Policies of this nature define local public offices as separate service providers, a condition under which their position as provider could be challenged if performance standards are not met. Competition can also be enhanced by policies that support the development and maintenance of a pool of potential service providers (Sheets & Stevens, 1992). In cases where there are few WFD service providers, policies favoring competitive contracting models may provide an option for improving limited competition (e.g., see Hatry, Voytek, & Holmes, 1989).

- The development of systems, methodologies, and processes that provide ongoing access to accurate information relating to stakeholder needs. Stakeholders are defined as those individuals who receive WFD system services; organizations who contribute to and benefit from WFD system activities (including schools, businesses, public sector organizations, and so on); and society in general (American Society for Quality Control, 1996). This information is critical for system maintenance and change.

Principle 7: High-performance WFD systems are responsive to the economic and social goals of the community that they serve.

The success of other high-performance WFD systems in the world, such as those in Japan and Germany, underscore the importance of WFD policies and goals that accurately reflect community social, economic, and labor market values and goals (Finegold, 1995; Marshall & Tucker, 1992). WFD policies and goals must be explicitly coordinated with a wide range of policies and goals including those addressing equity, racism, discrimination, and poverty; wage levels, wage spread, and employment levels; and those addressing economic development initiatives aimed at expanding or retaining existing businesses, attracting new business and industry, and the creation of new enterprises. A mutually reinforcing set of policies and goals enables the WFD system to provide the greatest possible benefit for society. In practice, this means the creation of mechanisms tying education and training goals and activities to economic development plans and larger social goals of community (e.g., attainment for all of fundamental levels of literacy and basic skills), and the establishment of formal processes that drive consensus building.

Principle 8: High-performance WFD systems utilize a holistic, systems view of individual development.

High-performance WFD systems must be capable of responding to the needs of individuals at all stages of career growth and development. This includes job and career preparation for individuals entering the workforce; skill upgrading, job retraining, or re-careering for those already in the workforce; and preparing individuals for career exit as they approach retirement or passage out of the workforce. It also means the WFD system is capable of providing opportunities for individuals to obtain a balanced set of skills including basic workplace literacy skills (e.g., SCANS skills), job-specific skills, and lifelong learning skills. The implication is that no single program can meet all of an individual's needs. Rather, individual development occurs through participation in a coordinated system of programs capable of meeting the full spectrum of individual needs.

A holistic approach recognizes that high-performance WFD systems build competence in several key areas. For example, Holton's (1996) model of individual development identifies four content domains of work-related competence critical for workplace success: individual, people, organization, and work tasks. This model provides a comprehensive guide for WFD programming and challenges secondary and post-secondary education to effectively extend their educational

responsibility beyond task-related knowledge and skills to more fully encompass
all four domains:

- In the individual domain, developing appropriate work-related attitudes, realistic expectations, and a sound understanding of what it takes to be successful in work organizations.
- In the people domain, providing skills that enable individuals to interact effectively in the work environment. This consists of managing impressions, understanding and building effective relationships with people, and learning how to be an effective subordinate and to manage the subordinate-supervisor relationship.
- Developing organizational knowledge including an understanding organizational culture and its influence on organizational life, the role of informal systems and procedures in organizations, the power of organizational politics, and the expectations the organization has for individuals in particular roles.
- Developing task-related knowledge and skills, particularly the development of learning skills necessary for staying competent both now and in the future.

Principle 9: High-performance WFD systems are responsive to individuals at all socioeconomic levels.

Workforce development is not just a matter of serving currently employed, recently unemployed, or underemployed individuals. People at all levels of capability and potential are needed for a strong, vibrant workforce capable of attracting new business and industry to communities and helping existing organizations remain competitive. The WFD system must assume responsibility for assuring that all individuals have the opportunity to obtain the basic skills and accompanying certification that will lead to employment and open the door for future knowledge and skill upgrading. It is therefore vital that high-performance WFD system be flexible and responsive enough to meet the dynamic and diverse needs of the traditionally under-served segments of the population, including those who cannot attain the required knowledge, skills, and attitudes, and accompanying credentials or certification, through existing institutions. Systems, processes, and programs must be developed and implemented that identify and integrate into the workforce all individuals who, for whatever reason, do not have access or have not been served by the WFD system. In practice, this means:

- The development of policies that attack discrimination against minorities, women, older workers, and the disabled; enhance access to child care services (e.g., develop a comprehensive child care policy for employer sponsored child care); make child support enforcement more effective (Governor's Human Resources Advisory Council, 1992); facilitate the provision of accessible and affordable health care (e.g., employer-based health care insurance) (Bedford & Ganzglass, 1992); or develop family-responsive employment policies such as those encouraging the use of flextime or compressed workweek (Olmstead & Trippe, 1992).
- Simplifying WFD system accessibility by providing multiple access points for intake services for all programs (e.g., electronic access to intake processes through publicly accessible computer systems such as those in public libraries, or telephone and mail access to intake services); and assuring all services are accessible by public transportation and to individuals with disabilities.
- Developing strong case management processes. Research suggests the most effective case management approach is one in which customers are guided through the system by a single, well-trained case manager who works with all agencies and programs (Governor's Human Resources Advisory Council, 1992).

- Providing access to ancillary support services that remove all barriers to individual participation in the WFD system. Some of the most frequently reported barriers to participation, particularly for lower socioeconomic citizens, include the lack of access to health services, adult day care, and transportation.

Principle 10: Continuous improvement is a core process of high-performance WFD systems.

Core processes are those fundamental components of WFD systems that enable them to produce the outputs necessary to accomplishing their mission and goals. This principle specifies that high-performance WFD systems embrace continuous improvement as a core process, one that enables them to systematically improve their effectiveness in meeting current and future WFD needs.

Although much has been learned from national and international experiences in workforce development, many key questions remain about the what and why of program outcomes for particular sub-groups, the variation of effects across settings, how to structure effective programs, and the effects of entire delivery systems on broad populations and selected groups. For example, a number of critical questions remain unanswered about welfare-to-work programs (Gueron & Pauly, 1991), school-to-work programs and systems (Stern, Finkelstein, Stone, Latting, & Dornsife, 1994), and the impact of support services on participation, completion, or outcomes in WFD programs. Policies supporting ongoing research, particularly experimental and quasi-experimental research, aimed at closing these and other knowledge gaps are critical to the continuous improvement of the WFD system.

Developing, implementing, and testing new approaches to workforce development preparation is also essential to the effectiveness of WFD systems that operate in highly dynamic environments. For instance research directed at key labor market problems or special hard-to-reach populations could improve the market responsiveness of WFD systems. Strong competitive grant programs that give service providers specific and detailed information about program specifications and competitive cost and quality standards can encourage the exploration of innovative strategies to meet performance objectives. Such programs may also defend against provider monopolies, particularly in areas where there are small numbers of providers, when complemented by consumer information and voucher systems that allow consumers to select services (Sheets & Stevens, 1992).

Summary and Conclusion

As workforce preparedness becomes an increasingly important element of individual well-being and of social and economic progress, it is essential that we put in place policies and systems interwoven into a seamless pattern of services that support the development of our human resources. This represents the central challenge and perhaps the greatest opportunity for educators and HRD professionals as we move into the next decade. The principles summarized here offer a vision that reflects best practices for addressing this challenge through the development of high-performance WFD systems. The principles emphasize an integrated, comprehensive, systematic approach to workforce development that is built on a foundation of partnership among stakeholders, sound performance management, market-orientation, and continuous system improvement. High-performance WFD systems are seen as those that are responsive to both economic and social goals as well as to the needs of all individuals. The principles are intended to serve as guides for WFD system planning at the local, regional, or national level, and to establish standards of excellence that high-performance WFD systems should strive to meet.

It is vitally important for educators and HRD professionals to have a sound understanding of the core principles upon which WFD systems should be built. Particularly with the passage of Workforce Investment Act of 1998, educators and other community leaders involved in workforce development will be called upon to partner with local workforce investment boards and elected officials to plan and oversee the development of the local WFD system. Knowledge of high-performance WFD system design will help them fulfill this increasingly important role in the social and economic progress of their communities.

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DISPOSITIONS TOWARD CRITICAL THINKING RELATED TO ANALYTICAL WRITING

Barbara A. Wilson

Abstract

The purpose of this study was to investigate the relationship between a disposition towards critical thinking and analytical writing. Seventy-three students enrolled in the Analysis of Communication for Business course participated in the study. The California Critical Thinking Disposition Inventory (CCTDI) and the formal analytical report score were significantly related. Furthermore, three of the seven subscales of the CCTDI--Analyticity, Open-Mindedness, and Systematicity--were significantly related to the analytical report score. Students who scored low on at least one of the three individual scales performed poorly on the analytical report. The CCDTI may be an effective measure for assessing the development of analytical writing skills in business students.

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Business communication faculties need better assessment tools to facilitate teaching analytical writing to a more diverse student population. The business community expects business graduates to write analytically (Bednar & Olney, 1987; Bennett, Ingram-Cotton, & Lammers, 1995); yet, college students are underprepared and lack basic writing skills.

Pre-enrollment test scores show that 49 percent of all first-time freshmen in the California State University (CSU) system need remedial English (Half of CSU freshman, 1996). More specifically, at the Northridge campus, 70 percent of the students are unprepared in English. Furthermore, students have not performed well in the *Analysis of Communication for Business* course. Wilson and Plutsky (1996) found that the mean score for the formal analytical report was 1.40 (4-point scale) and the average course grade was 1.64 (4-point scale). Finally, 22 percent of the Northridge students failed the Writing Proficiency Exam, an extemporaneous essay, which is a graduation requirement. Thus, students come to the CSU system underprepared in writing skills and have difficulties meeting the writing requirements in their programs.

A review of the literature on the development of writing skills helps to explain college students' weak analytical writing skills. Most of the research on writing has been conducted at the secondary level where informational writing has been emphasized over analytical writing with summary exercises appearing most frequently (Applebee, 1984a). Consequently, students have avoided analytical writing formats or approaches (Applebee, 1984b) . Likewise, Apple, Durst, and Newell (1984) found that analytical writing seemed to pose more problems than summary writing, but offered few instructional strategies.

Research supports the implementation of strategic programs to facilitate the development of thinking and writing skills, but provides little on effective methods for assessment (Bensely & Haynes, 1995; Brown & Keeley, 1988; Durst, 1984). Peter Facione and his colleagues have developed a measure that may be an appropriate instrument. The *California Critical Thinking Disposition Inventory* (CCTDI), which is designed to measure dispositions related to demonstrating critical thinking abilities, measures the disposition for reasoning and the use of evidence to support main ideas (Facione, Facione, & Sanchez, 1994).

Some academics share the perspective that a preliminary disposition to think critically needs to exist before students are inclined to display critical thinking abilities (Dewey, 1993; Facione, Facione, Sanchez & Gainen, 1995; Jones, 1995; Siegel, 1988). Motivational theory (Lewin, 1935) provides the foundation for the premise that the disposition to value and use critical thinking drives a student to achieve mastery, being motivated to close the gap between what is valued and what is desired.

The purpose of this study was to investigate the relationship between a disposition towards critical thinking and analytical writing. A significant relationship would imply that the CCTDI could be used to measure the development of analytical skills of business writing students. Assessment is an important consideration as students become more challenging and the business community has higher expectations of analytical writing skills.

The California Critical Thinking Dispositions Inventory

The CCDTI was developed to measure theoretical qualities of the disposition toward critical thinking: Inquisitiveness, Open-Mindedness, Systematicity, Analyticity, Truth-seeking, Critical Thinking Confidence, and Maturity. These seven dispositional attributes were the result of the 1992 American Philosophical Association Delphi research project and are described in Table 1. At this time, little research has been conducted using the CCTDI.

Analysis of Communication for Business Course

This upper-division core course is required for all students in the College of Business Administration and Economics, preferably in their junior year. Fifty percent of the course concentrates on a formal analytical report requiring students to: analyze the audience, identify the problem, state the purpose, categorize information, show relationships between ideas, draw conclusions from facts, and make recommendations supported by conclusions. The analytical report requirements include primary and secondary research, a visual aid, formal components of a manuscript (title page, letter of transmittal, executive summary, and bibliography), proper editorial style, and appropriate reference citations. Evaluation of the analytical report is holistic using the following criteria: organization and content, development of ideas, language skills, and format (appearance). Most analytical reports are 12-15 pages in length, double spaced.

Methodology

This was a descriptive study investigating the relationship between variables. Among students enrolled in the *Analysis of Communication for Business* course, the research question was: What is the relationship between dispositions toward critical thinking and the analytical report scores?

Table 1

Definitions of Individual Scales for the California Disposition Towards Critical Thinking[1]

Individual Scale	Definition
Inquisitiveness	one's intellectual curiosity and one's desire for learning even when the application of the knowledge is not readily apparent
Open-Mindedness	being tolerant of divergent views and sensitive to the possibility of one's own bias
Systematicity	being organized, orderly, focused, and diligent in inquiry
Analyticity	prizing the application of reasoning and the use of evidence to resolve problems, anticipating potential conceptual or practical difficulties, and consistently being alert to the need to intervene
Truth-Seeking	being eager to seek the best knowledge in a given context, courageous about asking questions, and honest and objective about pursuing inquiry even if the findings do not support one's self-interests or one's preconceived opinions
Critical Thinking Self-Confidence	allowing one to trust the soundness of one's own reasoned judgments and to lead others in the rational resolution of problems
Maturity	approaching problems, inquiry, and decision making with a sense that some problems are necessarily ill-structured, some situations admit of more than one plausible option, and many times judgments must be made based on standards, contexts, and evidence which preclude certainty

[1] Facione, Facione, Sanchez & Gainen, 1995, pp. 6-9.

The population comprised 25 sections of *Analysis of Communication for Business* in the College of Business Administration and Economics. Each section has approximately 25 students. Professors, lecturers, and part-time instructors teach from one to four sections of this course during a semester.

Four sections of the *Analysis of Communications for Business,* taught by one professor, were selected. One professor was chosen to eliminate instructor bias. Seventy-three students (58 juniors, 12 seniors, and 3 graduate) completed the analytical report and the CCTDI. The CCDTI was administered after the analytical reports were completed.

The California Critical Thinking Dispositions Inventory (CCTDI contains 75 Likert-type items asking respondents to rate each statement by choosing one out of six responses ranging from STRONGLY DISAGREES to STRONGLY AGREES. Alpha reliabilities for the seven individual scales in the initial pilot sample ranged from .71 to .80. The alpha reliability for the overall instrument, measuring the overall disposition toward critical thinking was .91 (Facione et al., 1995). Scores on the individual scales can range from 10 to 60; scores below 30 indicate consistent opposition or weakness towards the attribute, a score of 40 indicates minimum endorsement, and scores above 50 indicate a strong endorsement. The total score is a sum of the individual scores and can range from 70 to 420; scores above 280 indicate a positive overall disposition towards critical thinking.

The topic for the analytical report of the students participating in this study was to investigate the social customs (business etiquette) of another country that may affect the success of a business transaction. Students were offered two possible scenarios: (1) assume you are going to another country for two weeks to begin negotiations for a business contract and your company has never conducted business there before, or (2) assume your manager has given you the responsibility of writing a research report on the social customs of another country to guide new salespersons conducting business transactions in this country. What would you need to know about doing business in this country?

An evaluation checklist was used to communicate strengths and weaknesses of the analytical report to the student, which was divided into categories: prefactory parts, introduction, body, conclusions, recommendations, bibliography, format, and language skills. One professor, who was assigned all four sections (73 students), evaluated the analytical reports. The following scale was used to assign a letter grade: A, 75-80; B, 69-74; C, 62-68; and D, 56-61. Seventy percent and above is required for a passing grade.

Findings and Discussion

The frequency distribution for their disposition towards critical thinking shows a normal curve with 77 percent of the business students having a positive overall disposition towards critical thinking (scores above 280). However, only 16 percent were positive (above 40) on all seven CT subscales of the CCTDI. The most common profile shows students scoring positively on either four (30 percent) or six (30 percent) of the CT subscales of the CCDTI. Table 2 shows summary statistics for the independent and dependent variables. Business students have a mean total score of 297.93 on the CCTDI, and positive mean scores (above 40) on all the individual scales except Truth-Seeking. Students show the strongest disposition towards Inquisitiveness and Analyticity.

Based on the data, students are positively inclined towards inquiry and the desire for learning. They are inclined to analyze problems by examining the component parts and their relation to the whole, to consider the potential effects of one choice over another, and to recognize the need to reevaluate the process. However, they are not especially open to new facts or perspectives and are not likely to change their mind (egocentric). It is important to caution the reader that a positive disposition for a CT subscale of the CCTDI may not predict skills for that attribute. A strong inclination only means that a student is more likely to use the skills that he or she has,

Table 2

Summary Statistics of Business Students' (*n* = 73) Disposition Towards Critical Thinking and Analytical Report Score

Variable	Mean	*SD*
Independent Variable		
CCTDI	297.93	30.84
Inquisitiveness	46.77	6.85
Open-Mindedness	41.24	6.56
Systematicity	42.56	8.63
Analyticity	45.11	5.39
Truth-Seeking	36.12	6.89
Critical Thinking Self-Confidence	44.03	6.54
Maturity	41.45	7.44
Dependent Variable		
Analytical Report Score	65.89	7.76

while a weak inclination means that the student is less likely to use his or her skills.

The frequency distribution for the analytical report score is positively skewed. Six more students received a Grade A or B than students who received a Grade D or F. The mean score is 65.89 (Table 2) which represents a Grade C. Ten students scored below 56, thus failing the analytical report assignment and the course.

Strong papers showed continuity in the title, problem statement, purpose statement, and research question and demonstrated good analysis in the discussion, conclusions, and recommendations. Weak papers exhibited inadequate language skills, poor development of ideas, little analysis, missing parts, or were off the assigned topic.

The CCTDI was significantly related to the analytical report score as shown in Table 3 with $p = <.000$. Thirty-two percent of the variance in a disposition towards critical thinking was explained by the analytical report score. Because the relationship was significant, multiple regression was run between the analytical report score (dependent variable) and the seven individual scales (independent variables) of the CCTDI (Grimm & Yarnold, 1995). When stepwise multiple regression was run, Analyticity, Open-Mindedness, and Systematicity were significantly related to the analytical report score. Thirty-five percent of the variability in the analytical report score was explained by these three CT scales or the CCDTI. Similarly, Facione et al. (1995) found that two of the individual dispositional scales, Analyticity and Maturity, were related to English Composition grades in his validation study. Thus, Analyticity was related to writing in both studies.

Analyticity means that reasoning and the use of evidence to support main ideas is necessary in analytical writing

Table 3

Multiple Regression Statistics of Business Students' Disposition Towards Critical Thinking and Analytical Report Score

Variables	*B*	*SE B*	Beta	*T*	*Sig T*
CCTDI[1]	2.287	.385	.575	5.927	.000*
(Constant)	147.231	25.601		5.751	.000
Analyticity[2]	.360	.149	.250	2.414	.018*
Open-Mindedness	.441	.113	.394	4.103	.001*
Systematicity	.229	.092	.255	2.482	.015*
(Constant)	20.630	7.356		2.804	.006

[1] Multiple R = .575
R Square = .330
Adjusted R Square = .3215
Standard Error = 25.403
F-Ratio = 35.124
$P < .000$

[2] Multiple R = .614
R Square = .378
Adjusted R Square = .3510
Standard Error = 6.249
F-Ratio = 13.983
$P < .000$

as well as the need to use metacogitive skills--thinking about one's evaluation process. An analytical person resolves problems by examining the component parts and their relation to the whole, considering the potential effects of one choice over another, and recognizing the need to reevaluate the process. A person lacking analyticity may have difficulty evaluating multiple solutions to a problem or preparing a good argument. *Open-Mindedness* means that new information and viewpoints must by assimilated into one's own viewpoint and biases. An open-minded person invites pluralistic viewpoints and values the freedom to choose (lifestyles, religion, etc.).

A person lacking open-mindedness may be intolerant of divergent viewpoints by categorizing them as right and wrong (sociocentric). *Systematicity* means that research must be conducted according to accepted methodologies, and information must be organized and categorized. A systematic person is organized, orderly, focused, and diligent in inquiry. A person lacking systematicity would be easily distracted or may use evaluation frameworks inappropriate to the field. These three constructs are part of the analytical report writing process. Accordingly, 17 out of the 19 students who received a D or F on their analytical report scored below 40 on at least one of the three CT subscales of the CCDTI.

Implications for Further Research

Because a relationship between the CCTDI and analytical writing has been found, two questions need to be researched: whether the relationship is consistent (reliability) in another sample of students, and whether significant increases between pre and post CCTDI scores can be expected in the business communications course. At this time there, is no research on whether the CT subscales can be significantly increased during a quarter or semester. If they can, the CCTDI would be an appropriate instrument to measure a student outcome for developing analytical writing in the *Analysis of Communication for Business* course.

Note: *The California Critical Thinking Disposition Inventory* is available from California Academic Press, 217 La Cruz Ave., Millbrae, California 94030

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U.S. CORPORATE AND PUBLIC ORGANIZATIONAL USES OF COMMUNICATION SYSTEMS

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Abstract

This study was to investigate the communication systems used in U.S. corporate and public organizations and their impact on user productivity and preference. Data were collected from 182 companies of different sizes in a wide range of industries and 132 public organizations of comparable sizes. The findings indicate that although corporate and public organizations used similar types of communication systems, significant differences existed between them in the frequencies of using traditional paper-based and computerized communication systems for business activities. E-mail was perceived by both sectors as having the greatest positive impact on their productivity, and telephone/pager/voice mail was the most-preferred communication system.

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More and more companies and public institutions have been restructuring their organizations and integrating computers, networks, groupware, and e-mail into their most basic processes to enhance productivity and competitiveness. According to the studies by Simons (1996) and McCollum (1996, 1997), there is an increasing use of communication technology in the business sector; managers discover that e-mail and Internet/intranet communications can improve customer service, interoffice collaboration, and productivity. Similarly, government and public organizations use computer networks for increasing efficiency and decreasing cost. The U.S. Senate, for example, saved more than $231,000 by using network computing and communication in 1997 ("U.S. Senate," 1997). As the Internet Software Consortium's recent study indicates, the number of Internet domain hosts reached 72.4 million in January 2000 worldwide, among which 45% are U.S. corporate and public domain hosts. Now almost every U.S. company or public organization has a Web site for communicating and sharing information and doing business (Lake, 2000).

As corporate and public organizations radically change the way they communicate internally and externally, the impact of such changes on user productivity, preference, and communication-technology training can be significant. In a Fortune special report, Magnet (1994) stated that, at long last, efforts to reorganize companies around computers, faxes, networks, and other infotech tools had begun to show the positive effect on business productivity in every industry. Teitelbaum (1995, 1996) reported that computers increase the efficiency of back-office jobs, cutting expenses and pushing up profit margins. By one estimate, technology was responsible for over half of all productivity gains of the Fortune 500 companies.

Research also indicates the importance of communication-technology training. Catchings and VanName (1997) pointed out that upgrading computer information systems without offering proper training can be a tremendous frustration to end users. Rothke (1993) stated that management information departments should educate and train employees in computer use rather than simply buying them sophisticated hardware and software. When choosing communication systems, users prefer reliable and user-friendly systems (Kuehn, 1995). There is a positive correlation between user preference and performance because users are generally motivated to perform well at the systems that they prefer to use (Nielsen & Levy, 1994). However, the choice of communication systems is influenced not only by user preference but also by media symbolism (e.g., authority, legitimacy, formality, and urgency). The symbolic character of a formal paper-based report, for instance, may serve to convey both the message and the impression of authority, legitimacy, and formality (Trevino, Lengel & Daft, 1987).

As the related literature indicates, research has focused on the general aspects of the organizational use of the new, computerized communication technology and its impact on users. No research has been reported to investigate in detail what types of communication systems are used in U.S. companies and public organizations, how similarly or differently the systems are used between the two sectors, and how the systems affect user productivity and preference. To clarify these issues, the following four research questions were addressed in this study:

1. What types of communication systems do U.S. companies and public organizations use for business operations?
2. How are traditional and computerized communication systems used in U.S.

companies and public organizations for routine and special business activities?

3. How do users in corporate and public organizations perceive the impact of traditional and computerized communication systems on productivity?
4. What types of communication systems are more or less preferred by users in corporate and public organizations?

The purpose of the study is twofold: (a) to provide business communication educators with the information that they need to make necessary adjustments and keep their curricula current, and (b) to provide both corporate and public organizations with the findings that will help them use communication systems more effectively and efficiently.

Methodology

A survey was conducted among two sample groups. The population of the first sample group consisted of the first 1,000 companies listed by size in a business directory of a Midwestern state. These companies range from the Fortune 500 corporations to small companies with 150 or more employees in various industries. The population of the second sample group consisted of 600 public sector organizations (excluding public schools) based on the American Business Information's database. To guarantee that the samples would be within 5% variation from the true population value, Jaeger's (1984) formula for determining sample size was used to obtain two random samples of 285 companies and 250 public organizations, respectively.

A questionnaire was developed which contained four sections: (a) demographics of the responding organizations; (b) uses of communication systems in corporate and public organizations; (c) communication systems and business activities; and (d) communication systems, user productivity, and user preference. Based on the review of related literature (see, for example, Andreessen, 1996; Bordia, 1997; Clampitt & Downs, 1993; Daft & Lengel, 1986; Good & Stone, 1995; Grygo, 1996; Lengel & Daft, 1988; Magnet, 1994; Row, 1997; Rubach & Stratton, 1995), seven communication systems and ten types of business activities were included in the questionnaire. The seven communication systems consist of four computerized systems (i.e., e-mail, fax, groupware/ intranet, and telephone/pager/voice mail) and three traditional ones (i.e., face-to-face meetings, paper mail/letters including sales letters, and paper memos/reports including periodical reports and bulletins). An "other" category was provided to identify any other possible alternatives.

Ten types of business communication activities were (a) coordinating activities, (b) delivering documents, (c) giving assignments, (d) making announcements, (e) making group decisions including negotiating and resolving conflicts, (f) receiving assignments, (g) replying to questions, (h) requesting information, (i) scheduling meetings, and (j) publicizing new products and services. Each activity also consisted of routine (e.g., familiar, non-persuasive, unambiguous) and special (e.g., novel, persuasive, complex) tasks.

A five-point Likert scale was provided for respondents to indicate the perceived impact of traditional and computerized communication systems on their productivity. Perceptions were used in the study because they are people's observations and recognitions of reality. As Watzlawick (1978), Werther, Ruch and McClure (1986) noted, people do not deal with reality per se, but rather with perceptions of reality. Empirical studies on the reliability of human perception reported significant positive correlation between perception and reality (Cournoyer & Rohner, 1996; Slutske & Heath, 1996). Productivity, as commonly defined, referred to the relationship between input and output, or the measure of how well resources (e.g., human, technological, and financial) are combined and utilized to produce a desired result (Schuler, Beutell & Youngblood, 1989; Werther, Ruch & McClure, 1986). To identify the user preference of the communication systems, a question was provided for respondents to rank the systems by their preference of use. In addition, an open-ended question asked respondents to report factors that influenced their preference.

To determine clarity of the survey instrument, a pilot test was conducted with 20 randomly selected companies from the management directory of a Midwestern state. Upon the return of the questionnaires, no major changes were deemed necessary.

A computer-assisted random sampling procedure was used to identify the 285 companies and 250 public organizations with the CEOs' office phone and fax numbers from the electronic databases of a management directory of a Midwestern state and the American Business Information, respectively. Second, each of the CEOs' offices was contacted by phone to (a) explain the purpose of the study and benefits for the participating companies, and (b) ask for participation and get the contact's name, phone and fax numbers, and e-mail address if available. Third, questionnaires were faxed to each contact and telephone and e-mail communications were used to facilitate the completion of the questionnaire. Fourth, phone calls were made to thank the respondents and remind the nonrespondents to complete and return their questionnaire. One hundred eighty-two companies cooperated and completed their questionnaires, which represents 64% of the 285 sample companies. Of the 134 responses received from the public sector, 132 were usable--a 53% response rate of the 250 sample public organizations. The response rates of 64% and 53% may affect the generalizability of the study. However, as shown in Tables 1 and 2, the responding companies and public

Table 1

Demographic Profile of the Responding Companies

Description		No. of Companies	%
Group Type of Company Business			
1. Manufacturing/Processing Industries		57	31.3%
2. Banking/Finance/Insurance		35	19.2%
3. Retail/Wholesale		32	17.6%
4. Health Care Services		27	14.8%
5. Information/Communication Technology		17	9.3%
6. Construction, Engineering, Mining, Oil/Gas, Transportation/Utilities		14	7.7%
	Total	182	100.0%
Number of Employees			
150 - 199		56	30.8%
200 - 399		56	30.8%
400 - 599		25	13.7%
600 - 799		17	9.3%
800 - 999		8	4.4%
1000 - up		20	11.0%
	Total	182	100.0%
Respondents' Job Titles			
Manager (e.g., Com, HR, IT, Office)		79	43.4%
Executive Secretary/Assistant		43	23.6%
Top Manager (e.g., CEO, CFO, COO)		32	17.6%
Professional (e.g., Accountant, Engineer, Sales and ServiceSpecialists)		28	15.4%
	Total	182	100.0%

Table 2

Demographic Profile of the Responding Public Organizations

Description	No. of Organizations	%
Types of Organizations		
Education	71	54.0%
Law Enforcement	15	11.4%
State/Local Government	38	28.6%
Other	8	6.0%
Total	132	
100.0%		
Number of Employees		
Less than 10	2	1.5%
10-199	77	58.2%
200-399	21	16.0%
400-599	14	10.5%
600-799	8	6.0%
800-999	1	1.0%
1000 - up	9	6.8%
Total	132	
100.0%		
Respondents' Job Titles		
Manager/Director	44	33.4%
Supervisor	10	7.6%
President/Chancellor (Col/Univ.)	10	7.6%
Vice President/Chancellor/Provost	9	6.8%
Project Coordinator	6	4.5%
Special Assist. to Pres./Chan.	6	4.5%
Chief Police/Fire/Sheriff	6	4.5%
Other	14	10.6%
No Response	27	20.5%
Total	132	100.0%

organizations represent six major industry groups and three main types of public institutions covering wide ranges of businesses, respectively; therefore, they are probably representative of their respective sectors in the U.S.

Each completed questionnaire was coded. Frequency counts, percentage distributions, and weighted averages were prepared for data analysis. Follow-up crosstabulation analyses and Pearson Chi-square tests were used to determine any significant differences between users in corporate and public organizations.

Results

The results of the study are presented in the sequence of (a) what and how communication systems were used in corporate and public organizations for management activities and (b) how users in corporate and public organizations perceive the impact of traditional and computerized communication systems on user productivity and preference.

Communication Systems Used in Corporate and Public Organizations

Research Question 1 asked, "What types of communication systems do U.S. companies and public organizations use for business operations?" As shown in Table 3, more than 95% of companies and public organizations were using five types of communication systems: face-to-face meetings, fax, paper mail/letters, telephone/pager/voice mail, and paper memos/reports for their business operations. By contrast, only 39% of the companies and 41.4% of the public institutions were using groupware/intranet. A significant difference was identified between companies (67%) and public organizations (84%) when comparing their use of e-mail. However, although only 67% of the companies reported using e-mail, the remaining companies reported that they were either

Table 3

Communication Systems Used in Companies and Public Organizations

Systems	Companies (n=182) Percentage	Companies (n=182) Frequency	Public Orgs (n=132) Percentage	Public Orgs (n=132) Frequency
Face-to-Face	99.5	181	100.0	132
Fax	99.5	181	99.2	131
Paper Mail/Letter	98.9	180	99.2	131
Phone/Pager/V-Mail	97.3	177	97.0	128
Paper Memo/Report	95.6	174	99.2	131
E-mail	67.0	122	84.0	111 **
Groupware/Intranet	39.0	71	41.4	55

** = Difference significant at the .001 level.

in the process of installing e-mail system or were thinking about it.

Research Question 2 asked, "How are traditional and computerized communication systems used in U.S. companies and public organizations for routine and special business activities?" As the mean scores in Table 4 show, corporate users rated phone/pager/voice mail (66%, 59%) and face-to-face meetings (58%, 61%) as two most frequently selected systems for routine and special activities. Following them were e-mail (58%, 46%), paper memos/reports (49%, 44%), paper mail/letters (44%, 42%), fax (44%, 40%), and groupware/intranet (30%, 26%). By contrast, public sector users ranked paper memos/reports (59%, 65%) and face-to-face meetings (59%, 64%) as being most frequently chosen, followed by phone/pager/voice mail (63%, 57%), paper mail/letters (55%, 60%), e-mail (50%, 48%), fax (32%, 41%), and groupware/intranet (36%, 39%). A great similarity between corporate and public sector users' responses was that

Table 4

Communication Systems Used in Companies and Public Organizations for Routine and Special Business Activities

	Mean Scores			
	Routine Activities (%)		Special Activities (%)	
Systems	Companies	Public Orgs	Companies	Public Orgs
Phone/Pager/V-Mail	66	63	59	57
Face-to-Face	58	59	61	64
E-mail	58	50	46	48
Paper Memo/Report	49	59 *	44	65 **
Paper Mail/Letter	44	55 *	42	60 **
Fax	44	32 *	40	41
Groupware/Intranet	30	36	26	39 *

* = Difference significant at the .01 level.
** = Difference significant at the .001 level.

they all selected face-to-face meetings as the most appropriate medium for making group decisions and for performing special business activities.

Significant differences were identified between corporate and public sectors in using some systems. Public sector users chose traditional paper memos/reports and paper mail/letters significantly more often than corporate users did for most of the routine and special activities such as (a) coordinating activities, (b) delivering documents, (c) giving assignments, (d) making announcements, (e) receiving assignments, (f) replying to questions, (g) requesting information, and (h) scheduling meetings. In addition, public sector users also chose groupware/intranet more frequently than corporate users did for making special announcements, scheduling special meetings, and giving and receiving special assignments. In contrast, corporate users selected fax more frequently than public sector users did for performing the following routine tasks: (a) coordinating activities, (b) delivering documents, (c) giving assignments, (d) making group decisions, (e) requesting information, (f) scheduling meetings, and (g) publicizing new products/service.

Impact on Productivity and Preference

Research Question 3 asked, "How do users in corporate and public organizations perceive the impact of traditional and computerized communication systems on productivity?" As presented in Table 5, the respondents from both sectors perceived e-mail, telephone/pager/voice mail, fax, face-to-face meetings, and groupware/intranet helping increase their productivity, with e-mail taking the lead. To the contrary, traditional paper mail/letters and paper memos/reports received lowest scores of enhancing user productivity. Furthermore, corporate respondents perceived significantly more positive impact of phone/pager/voice mail and fax on their productivity than did their counterparts in the public sector.

Research Question 4 asked, "What types of communication systems are more or less preferred by users in corporate and public organizations?" As Table 6 shows, when asked to rank the seven communication systems by user preference, the respondents of both sectors ranked phone/pager/voice mail at the top of the preference list, followed by face-to-face meetings, e-mail, fax, paper memos/reports, paper mail/letters, and groupware and intranet. Significant difference was identified between the two sectors with the corporate respondents preferring to use fax more than did the public sector users.

Table 5

Perceived Impact of Communication Systems on User Productivity Between Companies and Public Organizations

	Weighted Average[a]	
Systems	Companies	Public Orgs
E-mail	4.4	4.4
Phone/Pager/Voice Mail	4.3	4.0 *
Fax	4.2	4.0 *
Face-to-Face Meetings	3.8	3.9
Groupware/Intranet	3.8	3.7
Paper Mail/Letters	3.3	3.4
Paper Memos/Reports	3.3	3.4

Note. [a] Responses to a Likert-type scale where 5 = greatly increase productivity, 3 = no change, and 1 = greatly decrease productivity. * = Difference significant at the .01 level.

Table 6

User Preference of Communication Systems Between Companies and Public Organizations

	Weighted Average[a]	
Systems	Companies	Public Orgs
Phone/Pager/Voice Mail	2.3	2.5
Face-to-Face Meetings	2.6	2.6
E-mail	2.8	2.7
Fax	3.5	4.4 **
Paper Memos/Reports	4.9	4.6
Paper Mail/Letters	4.9	4.7
Groupware/Intranet	5.3	5.0

Note. [a] Responses to a rank scale where 1 = most preferred, 7 = least preferred, and 0 = not used.
** = Difference significant at the .001 level.

Summary and Recommendations

In summary, respondents from both corporate and public organizations reported using similar types of traditional and computerized communication systems such as face-to-face meetings, fax, paper mail/letters, phone/pager/voice mail, paper memos/reports, e-mail, and groupware/intranet for business operations. However, public sector users chose traditional paper mail/letters and paper memos/reports significantly more often than corporate users did for performing routine and special business activities.

E-mail, phone/pager/voice mail, and fax were ranked by respondents of both sectors as being at the top in enhancing user productivity. Face-to-face meetings and groupware/intranet were ranked in the middle, whereas paper mail/letters and paper memos/reports were at the bottom for enhancing user productivity. Many corporate respondents also reported that their companies could hardly exist in today's business world if they did not use e-mail, phone/pager/voice mail, and fax. Although public sector users reported heavy use of traditional paper mail/letters and paper memos/reports, they perceived these tools as having least positive impact on their productivity. Public sector's heavy use of traditional paper-based documents might illustrate the bureaucratic tradition or governmental rules constraining public sector users' choice of communication systems, regardless of the impact on productivity, as a formal paper-based report may convey an impression of authority, legitimacy, and formality (Trevino, Lengel & Daft, 1987).

Furthermore, a communication system's positive impact on productivity does not mean that users prefer the system. For example, although e-mail was perceived as having the greatest positive impact on user productivity, it was ranked below phone/pager/voice mail and face-to-face meetings in preference by users in both sectors. Similarly, groupware and intranet were ranked as the least preferred systems, although they were ranked in the middle for their impact on productivity. This finding supports Catchings and VanName's (1997) finding that upgrading information systems without offering proper training can cause frustration to users despite knowing the benefits of using the new systems.

Based on the findings of the study, the following recommendations are made for business communication educators, public organizations, and corporations:

First, oral communication, business meeting skills, and telephone skills should continue to be emphasized in business communication courses as telephone/pager/voice mail and face-to-face meetings are most frequently used and preferred systems for enhancing user productivity in both corporate and public sectors. Business communication educators should be aware that although groupware and intranet are rated in the middle for enhancing user productivity, they are ranked as the least preferred and least chosen by users. This finding suggests the importance of the proper training. Teaching such new technologies and requiring students to use them for completing some assignments can help students enhance productivity as well as develop competitive advantages in this computer-networked marketplace.

Second, public organizations should consider using more computerized communication systems and reducing the heavy use of paper-based documents in performing daily business activities. By doing so, public organizations can greatly increase productivity and decrease the high cost of the paper documents, thereby saving taxpayers' money.

Third, both corporate and public organizations should consider providing employees with appropriate training programs when new computerized communication systems such as groupware and intranets are installed. Otherwise, users would not prefer to use these new systems, regardless of how good they are.

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ISSUES AND INNOVATIONS IN THE IMPLEMENTATION AND DELIVERY OF INTERNET- AND INTRANET-BASED INSTRUCTION

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Abstract

Net-based instruction (both Internet and Intranet) is perhaps the best way to combine the interaction of traditional face-to-face instruction with the flexibility of computerized instruction. The delivery of net-based classes has increased dramatically and continues to be one of the fastest growing segments of education. Many sources of information are available to administrators considering which technologies to choose in providing net-based instruction. Several guides are available to students considering enrollment in one of the growing number of colleges offering the innovation. Despite this remarkable growth most net-based classes continue to be developed by individual instructors who have little support for their endeavors.

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Distance education is nothing new, even without considering the 150-year-old traditional correspondence course as a type of distance education. Video-based courses have been offered via public television for decades. Interactive compressed video, which allows full participation by the student, has updated the delivery of video classes. Computer-based education adds to the repertoire of distance education choices. One of the major advantages of computer-based education is the lack of temporal constraints on the learner. The students not only are freed of the necessity of being in the same place; they do not need to meet at the same time. Computer-based education can be further subdivided. At one extreme are courses offered via disk with no instructor interaction. The other end of the continuum is represented by net-based instruction supported by student-instructor interaction, student-student interaction, network conferencing, video clips, e-mail, external web links, and a host of other opportunities.

Net-based (either Internet or Intranet) instruction has been recognized as perhaps the best way to combine the interaction of traditional fact-to-face instruction and the flexibility of self-directed study (Bernstein, 1998). Although correspondence courses, satellite instruction, and videotapes have been around for years, they have always been known more for their limitations than their capabilities. Student interaction–one of the keys to successful learning–was not part of the picture. In recent years, computer-based training (CBT) has helped remedy part of the problem. It lets companies distribute customized materials via CD-ROM or other disk media to employees across the globe. Although that ensures greater consistency in training, it still does not allow idea exchange and provides no central management tool. Modern technology is finally providing learning tools that combine the best of both worlds: computers and classrooms. Thanks to the rich capabilities of the World Wide Web and better browser software, it is possible to create a collaborative virtual environment using an assortment of course materials

(Greengard, 1998). Net-based instruction offers many well-documented benefits including consistency of delivery and global access (Driscoll, 1998). It helps employers guarantee that employee learning does not end with the doffing of the traditional cap and gown (Kim, 1998). Interactive on-line training, whether delivered by Internet or intranet, is one of the hottest trends in corporate training (Black, 1998). Companies report that it is considerably less expensive than classroom training and much more flexible than CD-ROM-based training. Net-based training makes it economical to train a few people at widely scattered locations. It is possible to make training available at times convenient to different employees, and the degree of interaction makes it preferable to CD-ROM-based training (Alexander, 1998).

Both Novell and Microsoft have examined the viability of net-based instruction for their network-certification programs and found that for their training purposes it was necessary to have a live instructor available to offer the students an interactive environment (Rose, 1998a). Rose notes the models of what training should be where assessment of an individual's needs is smoothly translated into a tailored learning plan, which then becomes the perfect learning experience followed by an accurate evaluation procedure to demonstrate conclusively that the learner has mastered the objectives. Rose observes that all too often, the training offered is not the ideal vehicle for accomplishing the desired goals because of lack of knowledge and resources. He laments that despite the repeated promises of change new technologies have failed to deliver updated pedagogy in any revolutionary way. In its latest incarnation, that promise is coming from the Internet (Rose, 1998a).

The following provides a survey of the current status of this important new delivery method as it is being expanded to provide not only corporate training, but formal university classes. It provides an overview of the types of resources available to both learners and instructors and concrete tips for all participants. It also highlights the need for additional information to participants.

Growth in Net-Based University Instruction

The enthusiasm for net-based instruction certainly is not limited to corporate application. Traditional universities are clambering to join the "virtual classroom" trend. Kim (1998) reports that according to data released in February of 1998 by the National Center for Education Statistics, 33% of U.S. colleges and universities offer distance-education courses, with 25% planning to make remote education classes available within the next few years. Only 25% reported using the Internet and computers, but that figure is increasing rapidly as more homes and businesses acquire online services (Kim, 1998). The online student body is now about 750,000 worldwide, and is predicted to double by the year 2004 (Fisher, 1999).

Colleges offering degrees that can be earned online include Duke University, University of Maryland, and Colorado State University, to name only three examples of many dozens ("Courses by keystroke," 1998). In addition several "virtual universities" have been developed especially to meet the demands of students seeking net-based instruction. One example is California Virtual University which is essentially an Internet-based catalog, listing the offerings of the California's accredited colleges and universities. Western Governors University will be a degree granting university in its own right, but will offer courses by a number of universities (Lee, 1998). Kentucky Commonwealth Virtual University is perhaps the most ambitious entrant into the market. Scheduled to begin operation in the fall of 1999, Kentucky Commonwealth Virtual University has legislative funding and the commitment of public-policy makers to an extensive infrastructure. It is not intended to have its own faculty or courses, nor will it be a degree-granting institution. Its purpose is to seek the programs needed from institutions within the state, when possible, or from outside the state if necessary. The university will provide information of course offerings, enrollment, student services, and academic support including proctoring service, library facilities, and a virtual bookstore (*Distance education and technology*, 1998).

Guides for Participants

A cursory review of the related literature reveals dozens of articles citing examples and extolling the virtues of net-based instruction. A significant number of articles are devoted to tips on how to choose a delivery system for these net-based classes (Kursh, 1998; Rose, 1998b). A few guides may be found for students embarking on net-based learning; however, less guidance is found for instructors developing net-based courses. This is particularly troubling because generally university courses delivered via the net are developed by individual faculty members acting on their own initiative (Owsten, 1997). Granger (1997) found little to address the needs for training, support, compatibility, or technology accessibility on or off campus. Therefore, despite the tremendous innovation in net-based instruction the issue of implementation has been treated but superficially.

Books are available on the subject of net-based instruction. The Distance Learner's Guide(1999) is an excellent resource guide and primer for the student. It covers the topics of how to evaluate a provider of net-based instruction and how to prepare to succeed in the environment. Students are offered specific guidance on how to determine if the provider offers sufficient support for success. Tips on how to study and prepare, how to avoid stress induced by the unfamiliar format, and how to adapt to the environment are presented in a lively easy-to-follow format.

Several guides are available for the administrator embarking on the creation of a "virtual" educational environment. McCormack and Jones (1998) offer a comprehensive "how to" book for setting up a distance learning program on the Web. They first touch on the principles of online education, then go on to discuss five different systems, supplying code, screen shots, and ideas for customization. The accompanying CD-ROM contains templates for online university classrooms with HTML, C, Perl scripts, and Java files that can be customized. McCormack and Jones help administrators determine what type of system will work best for their situation. They then present a number of different system models, as well as the insight, advice, and tools to adapt them to specific needs. Step-by-step, they go through all phases of a project, from analyzing resources and designing and implementing the site, to evaluating its effectiveness, as well as managing, modifying, and updating it.

Unfortunately this wealth of self-help information does not include much comprehensive information for the lone instructor attempting to develop an online class. In traditional university settings professors often use personal web pages to provide references and use links to on-line sources to enrich the learning experience (Kim, 1998). They may also post syllabi, lecture notes, homework assignments and sample exams for students to download. The vast data storage capabilities of the Internet make it a natural for this purpose. But Kim also reports that these same features can cripple the learning process. She found that professors thought it harder to put together good online classes because of the need to anticipate everything without overwhelming the students. Instructors spent more time preparing material. She also reported that the lack of non-verbal clues to follow caused communication problems. Citing the example of a professor who can easily detect the look of puzzlement on the faces of students in the same room, but has no way of knowing if students out there on the net are following the instructional process.

Tips for Instructors

Rose offers several concrete suggestions for the instructor of the net-based course from his findings (Rose, 1998a):

- Sound instructional design is the key to motivating online students.
- The student's equipment matters. You can send great sound and video over the wire, but it won't help if the learner has an old computer that can't reproduce them.
- Most people don't like to read large amounts of text from a computer screen.
- It takes a powerful lot of computer plumbing and people (machines, wires, telephone lines and maintenance personnel) to distribute national and international training from a centralized Web site.
- English is supposedly the world's unofficial "language of business," but that doesn't mean the world speaks English. If you make training available to Japan over the Web, it is prudent to do so in Japanese.
- Some students need a substantial amount of personal direction, structure and coaching. Online learning is not the perfect fit for all learners.
- Online interaction can be a mixed blessing. Many students dislike having their study burdened by "chat" with other students.

Black and Goldstein (1998) offer other concrete tips on achieving face-to-face results in the net-based environment. They suggest practicing on colleagues and friends to get a feel for problems that may occur. They suggest the instructor encourage students to prepare by experimenting with the technology before the class begins. They warn that the instructor can easily spend an hour working through technical issues instead of instructing. This is particularly frustrating for participants who take time out of work activities for training. In addition, they suggest that help desk and learner support resources be available through a technology support or information systems department to handle technical problems for learners. They offer specific techniques on engaging students in the learning process:

- Plan class activities carefully to help participants get involved with the material and each other.

- Plan short segments-long classes will cause most people to lose concentration.

- Use pictures to illustrate your words and concepts. Graphics engage learners and improve their retention. Be sensitive to those learners who may be running low-resolution systems by keeping graphics simple.

- Humanize the class. Ask learners to contribute information about themselves and their interests so you can get to know them.

- Vary the way you interact with learners. Instead of giving a 90-minute, lecture-style class online, give them short exercises that they can do as online groups or individually.

- Engage them in discussions. You can also ask participants to answer questions using text tools or online question-and-answer modules. Use the same tools to quiz their knowledge and gauge their understanding.

- Encourage online interaction. The more experience participants get using the tools, the better.

- Team up by using synchronous and asynchronous instruction.

- As in traditional classroom training, do not expect everything to go perfectly the first time.

- Team up with other on-line instructors. It is always helpful to learn from others rather than do it the hard way - through trial and error.

Finally, Black and Goldstein (1998) caution of the need to select quality technology. The instructor's effort should be directed at knowledge transfer, without distractions due to inappropriate, unintuitive, or ill-conceived delivery software.

Characteristics of Quality Programs

Potashnik and Capper (1998) cite the lack of confidence some detractors have in distance education programs in general. They attribute the perception of poor quality to deficiencies often attributable to inadequate planning and the use of superficial materials delivered in a piecemeal fashion. They claim that some programs give more attention to technology issues than to more important curriculum and learner-support issues. They point out that distance learning differs from conventional learning primarily in the isolation and the greater self-discipline required of its students. They consider these characteristics to be factors necessitating that quality distance learning systems provide adequate support to, and interaction with, students. They illustrate wildly different levels of support provided to distance learners. Examples they cite include the United Kingdom's Open University, notable for both the extent and quality of learner support, and the Virtual University of the Monterey Institute of Technology which assigns one full-time professor for each course and an assistant for each 50 students enrolled in the course. They cite cost as the primary factor in this variability with institutions more concerned with generating income than with providing adequate support (Potashnik & Capper, 1998).

Buechner, et al. (1998) raise several questions relating to net-based instruction. First they cite the problem of how to compensate teachers for the extra prep work necessary for quality net-based instruction. They posit that there has been inadequate research about what courses can be taught effectively this way. Like others, they point out that the interaction in a classroom full of students with a live instructor is hard to emulate. They also question whether the instructor, the marketer, or the provider of technology will ultimately control course content.

Jinny Goldstein, president and CEO of PBS, The Business Channel, asserts that no matter how it is delivered training will be ineffective unless individual learning styles are addressed and respected (Goldstein, 1998). Regarding web-based "learner-centered environments," Goldstein asserts that training is one thing, but learning is quite another and for learning to take place, organizations must move beyond "spray-and-pray" training. Moreover, the possibilities exist for an interactive training session that determines a user's learning style with a brief, but sophisticated, pre-course self-assessment and then branches off into exercises that are customized automatically for the learner. Training–especially with the emergence of Internet 2–will be enhanced by the combination of video, audio, interactive text, and chat areas to keep a learner's attention and make the training stick. All of that would combine for a virtual campus setting where learners can log into the Web anytime, anywhere, to download assignments, complete skill-building exercises, and communicate online with instructors and other course participants (Goldstein, 1998).

Conclusion

Many university instructors have been slow to adopt new pedagogy. University instructors have widespread access to classroom technology. They have been made aware of the advantages of an interactive learning environment. The case for discovery learning has been well made. Yet, despite all these findings the lecture is still the most widely used technique in the collegiate environment. History gives us no reason to believe that being offered the opportunity of on-line technology will produce changes in pedagogy. This opportunity can only be exploited with a paradigm shift supported by faculty training. In most institutions the training focuses on technological training soon to be obsolete. Too few professors actively pursue opportunities to experiment with different learning techniques and even fewer are well informed about the types of interaction amenable to net-based instruction. Let this be a call to teachers to embrace not only new deliver methods, but new learning strategies. Let it be a call to administration to recognize the need for training in this area. Instructors must devote the time necessary to effectively develop these courses and they need support to do so. In the interim, those instructors who are teaching Internet- and Intranet-based courses must be prepared to experiment in new pedagogy. Even without formal training in educational theory, instructors in the traditional classroom can draw upon personal learning experiences and centuries of anecdotal evidence in the quest for effective methodologies. These experiences may apply to Internet- and Intranet-based instruction in a limited way. Instructors must be prepared to examine traditional methodologies for those that seem intuitively appropriate and remain flexible in the attempt to adapt to this new medium.

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Teaching Ethics in the Information Systems Curriculum: A Pragmatic, Values-Based Approach

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Abstract

Most information systems (IS) educators agree that ethics issues deserve a place in the curriculum. IS ethics is a broad field that includes many interesting issues such as privacy rights. Many of the IS ethics issues that arise in the curriculum are not complex moral quandaries with multiple ethical solutions. Instead, these issues concern activities that are clearly unethical and sometimes illegal. This article will briefly discuss techniques that instructors currently use to teach ethics to business students, and then will present alternative strategies that can be more effective in encouraging students to exhibit ethical behavior in their future careers.

IS educators generally agree that a part of the curriculum that prepares future IS professionals should include instruction in ethics issues (Cohen and Cornwell, 1989; Oz, 1994a; Piper, et al., 1993) and discussion of computer abuse

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issues (Johnson, 1985; Pierce and Henry, 1995). Even though many schools today include separate ethics courses as electives or even required courses, the application of ethical principles to information systems activities continues to be high on the list of items included in information systems textbooks (Gupta, 1999; Laudon & Laudon, 2000). The need for integrated ethics instruction is even more important at the secondary school level than at the tertiary school level (Ryan & Bohlin, 2000).

Burton et al.(1991) argued that the specific methods we use to teach ethics issues in the classroom can make a tremendous difference in how effectively students learn and apply these lessons. This paper examines the ethical issues facing IS students in the classroom and professionals in practice. Strategies are presented for exposing IS students to these ethical issues in a way that effectively induces them to behave more ethically now and in their future careers.

IS Ethics Issues

Defining Information Systems Ethics

Gupta (2000) includes ten commandments published on the Computer Ethics Institute Web site in her definition of information systems ethics. The most comprehensive of these commandments is the admonition to always use computers in ways that demonstrate respect for other persons. Johnson (1985) defined computer ethics as principles for making moral decisions regarding information technology and computer use. Straub, et al. (1990) defined computer abuse as the unauthorized and deliberate misuse of computer technology.

Frankel (1989) noted that many professions have created codes of ethics for their members. The IS profession is no exception. Martin and Martin (1990) compared the ethical codes of four IS professional associations, the Association for

Computing Machinery (ACM), the Data Processing Managers' Association (DPMA), the Institute for the Certification of Computer Professionals (ICCP), and the Institute of Electrical and Electronic Engineers (IEEE). In their comparison, they identified no less than ten common themes in these organizations' codes of professional ethics. These themes included concerns for the well-being of others and responsibilities to stakeholders in the enterprise in which one is employed.

Incidence of Unethical Behavior

Vitell and Davis (1990) asked IS professionals about the opportunities for unethical behavior in their workplace. Their respondents replied that many opportunities existed, but that few IS managers engaged in unethical behavior. Despite these survey results, other evidence of substantial unethical behavior exists. Greenlee and Clark (1995) reported that, in 1994 alone, the Software Publishers Association took legal action against 447 organizations and collected over $2.5 million in settlements and fines. More recent surveys find continued increases in estimated violations. For 1999, the total cost os software piracy was $11.4 billion (Gallegos, 2000).

Harrington (1995) found that 41% of IS employees surveyed would copy software with the knowledge that they were committing an illegal act. Ten percent of respondents admitted they would be willing to infect an employer's system with a virus that they felt was relatively harmless. Mills (1995) and Ryle (1994) reported survey results showing actual incidence of computer abuse over the three-year period ending in 1993 to be up by more than 300% in the United Kingdom. In 1998, estimates of the proportion of all software in use in specific geographic areas that had been pirated ranged from 25% in North America to 77% in Eastern Europe (Windows Magazine, 1998).

These survey results continue similar long-standing findings. Ernst & Whinney (1989) reported that 50-90% of all U.S. firms experience computer abuse that results in monetary loss in any given year. Pierce and Henry (1995) reported fairly low computer abuse incidence rates in their sample of IS managers and employees (incidence rates ranged from 3% to less than 1%). Their sample of IS educators, however, included incidence rates as high as 80%.

Additional anecdotal evidence of a high incidence of unethical behavior appears regularly in reports such as those by Halper (et al. 1992) and Oz (1994b). Even though the price of individual software packages is declining, which might lead to reduced piracy attempts, the number of software packages in use has increased dramatically in recent years. The result is a continued high level of litigation in this area. The Software Publishers Association and the Business Software Alliance filed more than 200 major piracy lawsuits between 1998 and the beginning of 2000 (Gallegos, 2000).

Problems: Teaching Ethics to Business Students

Traditional Approaches to Business Ethics Education

Frequently, courses that consider business ethics use classical normative philosophical theories such as utilitarianism (i.e., to bring about the greatest happiness of the greatest number), and the categorical imperative (i.e., one's behavior should be governed by principles which one would have govern the behavior of all people) as their foundation. The extent of such use varies with the background and interests of the instructor, and is greatest in those programs that rely on philosophy or humanities instructors to teach business ethics curriculum (Pamental, 1989; Weber, 1990; Shoenfeldt, et al., 1991).

Instructors who do not use a normative philosophy approach often base ethical analysis on relativism. Ethical relativism is the idea that no moral approach has any greater validity than another and that ethics may vary over time and between cultures. By its nature, ethical relativism promotes a discussion of perspectives and ideas that is unlikely to result in student development of positive values and morality. This can make for interesting discussion and debate, but provides no moral compass for the students since any one point of view has as much moral validity as another.

Brady and Logsdon (1988), Furman (1990), Klein (1985), and Stieber and Primeaux (1991) are among the many who criticize the use of normative ethical theories to teach business ethics. Their criticisms include:

- Normative theories can be difficult to understand,
- Normative theories can be difficult to apply in real-world settings,
- Each normative theory has weaknesses that can draw discussion away from ethics issues,
- Theory complexities can confuse students and marginally-trained instructors, and
- Business students may not relate well to a philosophical approach.

Instructors in secondary schools and technical schools can be even less prepared to discuss the fine points of philosophical issues than are their counterparts teaching IS courses in colleges and universities.

Former Harvard University President Derek Bok (1988) argued against the option of relativism since it is unlikely to encourage ethical behavior or aid students' moral growth.

Classroom business ethics discussions often feature analysis and discussion of moral quandaries (Lampe, 1997). This is the case for both classes teaching business ethics generally and non-ethics courses such as an IS course covering ethics applications. Moral quandaries are situations that pose ethical dilemmas—a complex set of circumstances in which analysis does not lead to a single, clear, ethical solution. The problem of who should be given space on a lifeboat that can't take everyone in danger of drowning is a classic example of such a dilemma.

In information systems, a moral quandary often occurs when systems analysts improve computer systems to cut their employer's costs but find that the new system puts many of their fellow employees out of work. Another example of a moral quandary in information systems occurs when an employee must decide whether to post employer's computer data on the Internet when it discloses a law violation by that employer that would likely otherwise remain unknown.

These situations offer fertile ground for discussing competing ethical arguments for several resolution alternatives. Bok (1988) noted that class considerations of moral quandaries create opportunities for developing interesting discussions and sharpening debate skill, but such considerations do not guide students to better understand *basic issues of right and wrong*. Furthermore, as Levin (1989) observed, the focus of typical ethics courses on moral quandaries and ethical dilemmas suggests weaknesses in conventional morality that students may then use to rationalize their avoidance of clear ethical duties such as honesty and respect for others. This may occur for various reasons including students seeing, or even creating a dilemma for any ethical issue they confront because they have learned to view ethics as a grey area not having fixed rules that pertain to personal behavior.

Implications for IS Instructors

IS instructors searching for course elements that teach students about IS ethics issues, or those instructors that wish to include course elements designed to improve students' moral development and likelihood of engaging in ethical behavior, should be weary of the aforementioned pitfalls of the traditional approaches to business ethics curriculum.

There is considerable merit in training students to identify dishonest or unethical behavior and helping them develop skills to avoid engaging in such behavior. For example, McCabe and Trevino (1995) reported survey results that showed that college business students rated financial well-being as very important and reported a higher rate of cheating behavior than did college students in other disciplines. Other researchers have found business students' ethical values to be weaker than those of other majors, particularly liberal arts (e.g., Lane and Schaupp, 1989; O'Clock and Okleshen, 1993). These studies reflect the potential challenge of teaching ethics to students in vocational training for fields such as business or computer programming.

Solutions: Alternative Approaches to Teaching IS Ethics

Teaching the Fundamentals

Since IS instructors have limited time in which to teach IS ethics topics in their courses, the focus in these courses should be on the fundamentals of ethics. Lickona's (1980) observations on the value of cultivating ethics in small things: acts of kindness, honesty, and decency, is highly relevant to IS instructors who desires to raise the ethical awareness and functioning of their students within the context of any IS course.

Such cultivation can strengthen students' moral judgments so they are better prepared to face larger issues. A simplified form of normative philosophy may have some value, but showing students examples of ethical and unethical behaviors as they arise in the context of class discussion can provide a relevant and strong basis for their moral development and ethics education.

Today's textbooks for IS courses treat ethics in a variety of ways. Some books include a portion of a chapter on the subject (Schneider & Perry, 2000). Others include inserted cases or examples of ethical issues throughout the book (Gupta, 1999). Few books cover the issue in any depth or include a variety of ethical behavior examples. For example, Laudon & Laudon (2000) include fewer than 12 pages on ethics issues (out of 588 pages total).

Stressing the Importance of Ethical Behavior

Lampe (1997) notes that many students will have heard that *business ethics* is an oxymoron. He suggested that instructors face that statement directly with arguments supporting the contention that business ethics is an important, relevant topic. The instructor can argue that substantial respect for laws and ethics prevents most existing economies from collapsing into the chaos of anarchy.

In respect to ethics and business, students need to appreciate what management academicians have recognized: that ethics and values are a key part of business strategy (Freeman and Gilbert, 1988); that competent managers are ethical managers (Bishop, 1992; Smith & Hasnas, 1999); and that business leaders believe high ethical standards can create and enhance competitive advantage (Halfond, 1990). Instructors can even lead classes into discussions of how ethical and socially responsible exercise of the power and wealth of modern multinational corporations have the potential to help remedy such social problems as environmental degradation, poverty, and crime. For IS, positive and constructive uses of systems and data can be of value to this betterment process. The growth of the Internet and World Wide Web as tools of empowerment in developing countries is an excellent example of this (Smith & Hasnas, 1999).

Emotional Involvement

Students who are affected emotionally by ethics and moral issues are more likely to embrace the importance of ethics and improve their level of moral development. Hosmer and Steneck (1989) identified videotapes as a good tool for teaching ethics in applied settings. Videos excerpted from television shows or documentaries that include emotional interviews with individuals who have had their privacy invaded, or victims of computer crime can be very effective in establishing empathy. The Business Enterprise Trust of Stanford, California produces videos that feature winners of the organizations' awards. These award winners are businesses or business people that have performed exemplary acts of responsibility and provide excellent role models for students aspiring to careers in business-related fields.

Frank and open discussion of current news items with emotional impacts and ethics implications are also useful. For example, if an IS courses touches upon topics such as outsourcing and downsizing, instructors should take care to present the human and personal side of the resulting layoffs taken as the result of such cost-cutting measures.

IS instructors can identify local software authors and invite them into the class or set up video conferences for authors to talk to the class about the hours they have invested in their products and how they feel about people that use these products without paying for them. The class can be assigned to identify shareware sites that show the number of downloads. A class representative can be appointed to email the owners of a few programs and ask them how many registrations have been purchased and how they feel about the difference between downloads and registrations. In some cases, tens of thousands of copies of these programs are downloaded by users for which authors may receive only a handful of registrations and accompanying payments of license fees.

Finally, students can discuss a situation in which their privacy was invaded and how it made them feel. Increasingly, students that use e-mail are finding themselves the targets of unwanted mass e-mail campaigns (Perry & Schneider, 2000). Discussing the emotions and frustrations of being so targeted can add much to class discussion. Such first-hand presentations as encouraged here can humanize the issues and thereby make a strong and lasting impression on students.

Values-Based Ethical Analysis

Payne and Pettingill (1986-87) argued that values education can play a valuable role in students' ethical development. This approach is similar to corporate integrity initiatives that firms often base on ethical values. Paine (1994) noted that some firms identify a core set of values such as honesty and fairness; other firms identify specific ethical goals such as good service and community involvement.

The Josephson Institute of Ethics has promulgated a values-based approach that begins with having the class agree upon a common set of ethical values. Each member of the group has the right to veto any ethical value proposed by another group member—this ensures that all group members will support the final list of values. Typically, a class will find consensus on a set of values that includes some version of

Josephson's "core ethical values:" trustworthiness, respect, responsibility, fairness, caring, and citizenship (Josephson, 1995). The second step has the class apply these values to simple ethical problems that college students often face generally (e.g., student cheating), or in relation to a specific type of class such as IS. By choosing relevant topics, the instructor can increase student interest and involvement (Trevino and McCabe, 1994). In IS courses, topical ethical problems might include:

- Pirating copyrighted software,
- Breaking into other persons' accounts on shared computing facilities,
- Trading music files over the Internet
- Defeating copy protection on a lab computer,
- Hacking Web sites to deny service to customers or users of that site
- Writing to an unauthorized disk on a school network,
- Allowing an unauthorized person to use a student computer account,
- Loading virus software onto lab computers,
- Sending a virus out over the Internet, or
- Using a student account to run a business activity.

Students analyze the chosen ethical problem using the core ethical values on which they have agreed. Some students will argue that the unethical activity is not wrong and will defend this conclusion using some form of rationalization (e.g., "It doesn't hurt anyone."). The instructor can then identify the rationalization and discuss the role rationalization plays in unethical behavior (Josephson, 1995).

The cognitive conflict and mental discomfort that students experience as they construct rationalizations that are challenged by their peers and the instructor can lead ultimately to higher stages of moral reasoning (Conry and Nelson, 1989).

These ethics exercises work well in classrooms in colleges and secondary schools. Many of them can be adapted to work in the online environment of distributed learning. Instructors require little, if any, specific training before implementing these classroom exercises.

Conclusion

Successfully integrating ethics instruction into IS courses can be a challenging task. This article provides several straightforward techniques that IS instructors can use to include a valuable ethics component in their courses. These methods do not require extensive training in normative philosophy and consume little course time, especially compared to the value of the potential benefits they can provide. These ethics exercises can be readily integrated with existing IS course content and can turn a tedious, irrelevant lecture on ethical behavior into an interesting, meaningful and effective exercise in ethical and moral development.

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